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THE

REFORM-MEDICAL PRACTICE:

WITH A

HISTORY OF MEDICINE,

FROM THE EARLIEST PERIOD TO THE PRESENT TIME,

AND A

SYNOPSIS OF PRINCIPLES

ON WHICH THE NEW PRACTICE IS FOUNDED.

BY THE

FACULTY OF THE REFORM MEDICAL COLLEGE OF GEORGIA.

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TO THE

FRIENDS AND PATRONS OF MEDICAL REFORM

EVERYWHERE,

THIS WORK IS ESPECIALLY INSCRIBED

BY THE

FACULTY.

FACULTY

OF THE

REFORM MEDICAL COLLEGE OF GEORGIA.

L. BANKSTON, M. D.,
Professor of Physiology and Pathology.

J. T. COXE, M. D.,
Professor of Principles and Practice of Medicine.

M. S. THOMSON, M. D.,
Professor of Obstetrics, diseases of Women and children and Materia Medica.

I. N. LOOMIS, M. D.,
Professor of Chemistry, Botany, Microscopy and Pharmacy.

I. M. COMINGS, M. D.,
Professor of Anatomy and Surgery.

O. A. LOCHRANE, M. D.,
Professor of Medical Jurisprudence and Therapeutics.

PREFACE.

The Faculty of the Reform Medical College of Georgia, have long felt the want of such a Text Book on the Theory and Practice of Medicine, as they could with confidence place in the hands of their Students, and after waiting, and from time to time examining such new works as were published, and still finding them, however valuable in themselves, deficient as they conceived in description, causes, and diagnosis of the various forms of disease, concluded themselves to supply the deficiency, and therefore, at the close of the last Collegiate Session, they determined on the plan of a work that should meet their views in these particulars, as well as embody such treatment as the more mature experience of the Profession at this period of our History might afford. Considering the advance that has already been made by the new system, and the probable influence it is likely in future to exert on the Practice of Medicine generally, they thought proper to connect the recent History of Medicine with its preceding records, that the Student might see at a glance, its rise and progress, its circle-like progression and final advancement beyond the regions that are still sombered by the shadowy clouds that specially pertain to the dark ages; at the same time they concluded to set forth the principles on which the whole superstructure of Medical Reform rests, in as succinct a manner as their limits would allow, so that the work might embody such an amount of information as could no where else be found within the limits of one book, and at the same time be up with the Medical advancement of the day, in all that refers to the powers and benefits of Sanative Medication.

With these views, they employed Professors Loomis and Comings to prepare and arrange the matter for the press, under their (the Faculty's) joint supervision, as well as to correct and supervise the mechanical execution of the work; and at the same time decided to revise and re-publish Professor Bankston's views of Fever and Inflamation, &c., as the theoretical portion of the work.

Professors Loomis and Comings have so sub-divided their duties between them, that to the former, we owe the admirable paper on the History of Medicine—to the latter the compilation and arrangement of the more practical portion of the work, which bespeaks the untiring zeal, and arduous labor, as well as the extensive research by which it has been accomplished.

On account mostly of the magnitude and urgency of their professional engagements, the other members of the Faculty have been able to exercise but a limited supervision over the details of the work, but are pleased to say, that with trifling exceptions, the main features of the book, as at first contemplated, have been preserved, and the details, with here and there a trifling mechanical inaccuracy, such as is incident to all first editions, have been faithfully carried out.

Without intending to disparage any of those valuable works that have been issued from time to time, by various members of our Profession, it is but truth to say, that in most cases, the anxiety of their authors to popularize them down to the common comprehension of the masses, rather detracted from their value as Text Books for our Students, and compelled them to resort to Allopathic works at considerable additional expense for such information as was there denied them, which information, being so environed by error, has often been obtained by young Students, at the far greater cost of loss of principle. To obviate such necessity and hazard, the present work was undertaken, and to accomplish it no effort has been spared to obtain from every available source within our reach, the fullest, most recent and accurate description of diseases, their causes,

history, diognosis and prognosis, as well as such treatment as experience sanctions, and the great body of the Fraternity who advocate Sanative Medication, will doubtless approve.

It was at first proposed, to give the authorities from which quotations had been made, but on further consideration it was determined otherwise, in part, because it would mar the appearance of the book, and partly because of the difficulty there would be in designating the original author when all are quoted so freely, especially in the description of diseases, and the various symptoms with which they are accompanied.

Suffice it to say, we have drawn freely on Dunglison, Bell & Stokes, Wood, Watson, &c., on these points, and are indebted to Curtis, Worthy, Comfort, Beach, Kost and Mattson, as well as to many of our practical cotemporaries, who have long battled with disease, for much practical information, that will be found useful at the bedside of the afflicted, and which we have adapted to the particular case in hand, and we take great pleasure in making this public acknowledgment of our obligations to O. Fleming, M. D. of Alabama, J. R. Lassetter, M. D. of Georgia, J. S. Prettyman, M. D. of Delaware, J. D. Friend, M. D. of N. Y., W. T. Park, M. D. of Savannah, Isaac H. Hand, M. D. and Joseph R. Hand, M. D. of Georgia, as well as others, whose names appear in the body of the book, for valuable Recipes and general suggestions as to treatment, which have been incorporated in the work. With facilities such as these, to bring the work up to the proper standard of literary excellence, and pecuniary resources, *ad libitum*, promptly furnished by our worthy colleague, Professor Thomson, there is no reason why such a work as was promised should not be given to the profession; and we hope that a candid perusal of the book will vindicate the trust that has been placed in those who wrote it, and satisfy all, that the pledge so confidently given, has been fully redeemed in its letter and spirit by the

"FACULTY."

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PART I.

HISTORY OF MEDICINE.

CHAPTER I.

Ancient Medicine—Origin of the Practice of Medicine—Greece—Superstition—The Priesthood—CHIRON—ÆSCULAPIUS—Machaon and Podalirius—Blood-Letting—Asclepiadæ—Vegetable Remedies—Exposure of Patients in Public Places—Patient's Report—The Schools of Rhodes, Cos and Gnidos—Ancient Philosophers—Democritus the first Dissector—Progress of Medicine—HIPPOCRATES—His Doctrines—Crises—Writings of Hippocrates—Intervals between Hippocrates and Galen—Thessalus and Draco—Chrysippus, the first Reformer—Alexandrian School—Separation of Medicine and Surgery—Dogmatist and Empirics.

The History of the Science of Medicine, like the History of all the Arts and Sciences, carries us far back into the obscure regions of antiquity. There are those who imagine that to Greece and Rome are we indebted for the inception, at least, and in many instances for the perfection of the different departments of Science and Art; but as the researches of a Layard, a Champollion, a Rossillini, a Young, and our own Gliddon, have raised the curtain of the past, new light has sprung up, enabling us to reach a standing point, from which Greece and Rome appear comparatively modern, and little better than the copyists of the great masters who founded them. Nor is it necessary for us to resort to a heathen fable to account for the origin of Medicine. Whosoever first relieved the sufferings of his fellows, whether those sufferings were physical or mental, and whatever may have been the means employed, whether by direct medication, or by kindness or soothing attentions, or by magical incantations, was the first practitioner of medicine. The practice of medicine grows out of the necessities of our race and must be co-eval with human suffering.

Medicine in Greece cannot lay claim to the rank of a Science previous to Hippocrates. From its first introduction, up to this period, it partakes largely of the fabulous notions of that age, and is connected with their divinities, their heroes and their demigods. Nor was medicine an invention of the gods for the benefit of the Greeks. In Egypt this science, as well as all the Arts and Sciences, had reached a high degree of perfection, whilst yet Greece and other European States were still barbarian, and represented at the splendid court of the Pharaohs, by emissaries clothed in the untanned and hair-covered skins of wild beasts.

In the earlier periods of the history of any people, when superstitution prevails, when disease is supposed to be a direct visitation from some divinity, whose favor is to be propitiated for relief, the practice of medicine would consist of such magical ceremonies and incantations as would be thought best calculated to appease the offended deity. Under this state of things, the practice of medicine would be confined mostly to the priesthood, and even where considerable progress had been made—where it should be discovered that disease and pain could be relieved by direct means—by the application and administration of various remedies, they would naturally still combine the functions of the physician with their own sacred calling. In the earlier history of Greece, nearly all learning, whether it pertained to the mysteries of the temple, to literature or science, was limited to the priesthood, and whatever was known of medicine would mostly rest with them.

That the offices of priest and physician are united amongst a rude people, we have an example in the "Medicine Men" of our aborigines.

Until a period a little anterior to the Trojan War, B. C., 1184, no names of actual personages are known as connected with the practice of medicine in Greece. Chiron, one of the Centaurii, is the first native Grecian whose name appears in this connection; although previous to him, it is supposed that persons from Egypt and Phœnicia, as well as from other parts of Africa and Asia, brought to Greece much information respecting the art of medicine. So much pertaining to the history of Chiron is fabulous, and so little is real, that it is difficult to separate the latter from the former. The Centaurii were a race of monsters, supposed to have been the offspring of Ixion and the Cloud, and were said to be half man and half horse. Doubtless, the fabulous notion respecting the compound form of Chiron originated in the circumstance of his having been often seen on horseback, after the manner of his countrymen.

According to Sprengel, Ackermann and others, he was a prince of Thessaly, who, in the thirteenth century, B. C., after visiting Egypt and other countries for the purpose of perfecting himself in the art of medicine, returned to his native land, where he became distinguished as a teacher and a practitioner. He accompanied the celebrated Argonautic expedition, under Jason, to Colchis, in order to obtain the golden fleece. He instructed its heroes, Hercules, Castor and Pollox, Peleus, Pirithous, and Theseus, as well as their leader, in the art of medicine. He also taught medicine to the heroes who embarked against Troy, and to most of the princes and warriors of his time. He was also learned in other departments of Art and Science. He taught Astronomy to Hercules, and Music to Apollo. It is difficult to learn much of the nature of his theories, or his modes of practice. From what little can be gleaned from various sources, it appears that he employed *simples*, that he was familiar with dressing wounds and reducing luxations and fractures. Fable relates that he was shot in the heel by a poisoned arrow, that by the gods he was translated to the heavens, where he still shines in the constellation Sagittarius, represented as a Centaur with a bow and arrow, driving before him the other eleven constellations of the signs of the Zodiac.

Of all the noble pupils of Chiron, however, Æsculapius became the most distinguished. Previous to his appearance, medicine was pursued more as an integral part of a scientific education, than as a distinct profession. He is the first who seems to have devoted himself exclusively to its cultivation, and to have regarded other branches as only subservient to its pursuit. Like that of Chiron, his history is much involved in mystery and fable. He is said to be the son of Apollo, and the nymph Coronis—that in his infancy he was exposed on the mountains of Thessaly, that he was nursed by a goat, and protected by a dog, that he was found by a shepherd, who brought him up with care to a suitable age, when he was placed under the instruction of Chiron; that he soon excelled his master in knowledge and skill, that by his remedies, his manipulations, his incantations and songs, maladies and wounds were cured, and that he went so far as to call back the dead to life. This last encroachment upon the regions of Pluto, so enraged the god, that at his request Jupiter struck Æsculapius dead with a thunderbolt. His daughter Hygeia, was called the goddess of health, and his two sons, Machaon and Podalirius, became distinguished physicians.

During the earlier and more superstitious period in the history of any people, when the art of healing would be considered as a

divine gift, there would naturally prevail a disposition to pay divine honors to those who were successful in the practice of so noble an art. Accordingly, Æsculapius was worshipped as the god of medicine in a celebrated grove and temple at Epidamus. The ruins of the temple may still be seen at a place called Jero.

The knowledge and skill of Æsculapius were, according to the custom of those times, transmitted to his two sons, Machaon and Podalirius. They became very celebrated in their profession, and accompanied the Greeks in their expedition against Troy. Their practice was similar to that of their father, though they doubtless acquired more skill in dressing wounds, and in performing various surgical operations. It is but reasonable to conclude, that if these persons, Æsculapius and his sons, possessed a sufficient knowledge of the healing art, and had acquired sufficient skill to attract the attention of kings and heroes, and induce them to become their pupils, it must have consisted of something more than a series of charms and incantations. We cannot, therefore, agree with the assertion of most authors* that this constituted the whole, or almost the whole of their art.

Podalirius is supposed to have been the first who employed blood-letting, since which time the lancet has doubtless had more victims than the lance, yet, notwithstanding the millions of lives that have been sacrificed to this bloody absurdity, it is still practised by tens of thousands, who claim to have all the science and all the wisdom of antiquity to sanction it. One of the sons of Podalirius was named Hippolochus, and is said to be the direct ancestor of Hippocrates.

The practice of medicine for a long period continued hereditary with the descendants of Æsculapius, who received the name of Asclepiadæ. They were the priests of the temples dedicated to their ancestor, presiding over their ceremonies of worship, and such other rites and incantations as were supposed calculated to remove disease. Operating through the imagination, these ceremonies, conjoined as they often were with certain dietetic rules and practices, might do much towards relieving the sick upon the expectant principle of modern writers, or the psychological principle of still more modern times. Their temples were also erected in healthy and pleasant locations, and in the vicinity of *medicinal springs and wells*, remains of which may still be traced.†

According to Celsus, Pliny, Le Clarc, Schulz, Sprengel and

*Bostock and others.

†Manual of Classical Literature, by J. J. Eschenburg, translated by Prof. N. W. Fiske.—p. 156.

Cabinis, as cited by Bostock, vegetable remedies were employed internally for the removal of disease, though we can find in no author any allusion to the use of mineral agents in medication. In treating wounds also, they employed fomentations, ablutions, and the application of certain vegetable remedies.

The worship and rites and practice of the Asclepiadæn temples were continued for several centuries, during which time much progress was doubtless made in the science of medicine. Though the priests may have frequently employed the influence of their position, and of their calling for purposes of personal ambition and emolument, the favorable opportunities afforded themselves and others, of witnessing the various forms of disease, and their varied symptoms and phenomena, and the facilities offered for testing different medicinal agents and means of cure, must have resulted in large accessions to their store of medical knowledge, and many improvements in their methods of relieving disease. The custom of exposing the sick in public places, where passers-by, travellers and others, could examine them, making such remarks as the various cases might suggest, giving their experience in similar instances, the various phenomena exhibited, and the curative means employed, would afford the most favorable occasions for gaining useful information, and improveing the art of medicine.

Another practice must have contributed very materially to the promotion of medical study; we allude to that of requiring the patients after being cured, to deposit in the temple, as a part of its archives, a votive tablet, on which was written a statement of the case, its history, causes, symptoms, and the treatment adopted for its cure.

With all these facilities for the improvement of medicine, we cannot suppose it remained stationary. Impelled by a common feeling of humanity, men would naturally strive to improve the means of relieving the sufferings of their fellows. From these considerations we cannot agree with Bostock and others in the opinion that for a period of several centuries anterior to the appearance of Hippocrates, there was not a "single improvement" in the art of medicine. During this period were founded by the Asclepiadæn family, the celebrated temples and schools of Rhodes, Cos and Gnidos, from which sprang most of those philosophers who gained so great celebrity for themselves, and so enviable a reputation for Greece itself. We may here mention the circumstances in which originated the two rival sects, the Dogmatists and the Empirics, distinctions, which after a lapse of three thousand years, are not altogether destroyed. The priests connected with the temple of Cos

devoted themselves more to philosophical speculation and the formation of theories, and were hence called Dogmatists, whilst those officiating at the temple of Gnidos, gave their attention to the observation and collection of mere matters of fact, and were accordingly denominated Empirics.

The fact that Medicine was studied by all the philosophers of ancient Greece as a part of a liberal education, and that it was taught in all their philosophic schools, must not be overlooked in our estimate of the state of that science anterior to the Hippocratean era.

Amongst those who pursued successfully the study of medicine, and made to it valuable accessions, we may mention Democedes, Phythagoras, Thales, Epimenides, Pherecydes, Democritus, Heraclitus, Acron, Herodicus, etc.

Of all those persons who devoted themselves mainly to medicine during the century and a-half anterior to Hippocrates, who was born 460, B. C., Democedes appears to be the most distinguished. Whilst a prisoner of the Persian King Darius, at Sardis, the skill he exhibited, being so far superior to the Egyptian physicians present, whom the King always kept about him, he became the subject of many royal favors, and was finally permitted to return to his native Greece.

To Empimenides is ascribed the "Cnidean Sentences," and the "Coacæ Prænotiones," formerly attributed to Hippocrates, is referred to the members of the school of Cos. Thales, the Milesian founder of the Ionic School, and Pythagoras of the Italic School, are supposed to have made valuable accessions to the Science of Medicine and its correlative branches. The latter dissected various animals, and taught Anatomy and Physiology to a large assembly of students in his celebrated school at Crotona. Pherecydes, of Scyros, the contemporary of Pythagoras, is generally regarded a the author of a work on Diet, ascribed by some to Hippocrates. Democritus and Heraclitus, disciples of Pythagoras, were enthusiastic cultivators of Medical Science, the former having made considerable progress in Comparative Anatomy. He is also conjectured to be the first that ventured to dissect the human subject. Pliny mentions Acron as one who early endeavored to apply the general philosophical methods of investigation and reasoning to the Science of Medicine. To Herodicus is ascribed the invention of Gymnastic Medicine, which consisted mostly in such gymnastic exercises as were deemed essential for the preservation and improvement of health. The gymnasiarchs, as the superintendents of these exercises were termed, from the many opportunities afforded them of observing various diseases, must have acquired much valuable in-

formation. The stores of knowledge to which Hippocrates had access were extensive; and, as we have seen, several books once ascribed to him, were written before his time, and many others were written by his contemporaries or successors; we cannot suppose, therefore, that the actual accessions made by him to Medical Science constitute his chief claims to our admiration. Although it is quite impossible to determine, from the records that have reached us, how much actually originated with him, or even the books of which he is sole author, we are inclined to the belief, that, in these respects, he has been greatly overestimated by most writers. The history of Literature has shown us that some authors, who had enjoyed a world-wide renown, were chiefly indebted to their predecessors for the materials upon which their supposititious fame had been predicated. We need to mention but the name of Homer as an illustration. Judged by this principle, Hippocrates will doubtless assume his true position. His chief merit consists in having collected the materials that had reached him both orally and in writing, and from these, elaborating a system, which may be regarded as the true basis of the medical profession, and which contains the germs, at least, of all the systems and theories from his day to this. This remark, however, applies mostly to the old system of medicine, usually denominated the Allopathic. Although with Hippocrates, and as we shall hereafter see, with some of his successors, there may be discovered some indications of what we regard as the only true system, known as the "Reform School of Medicine," in which all depletive processes, as bleeding, cupping, blistering, all poisons, and narcotics are proscribed, and which claims a sanative medication alone; yet it is mainly the offspring of modern science, and could not have had an existence anterior to the discoveries in Chemistry, Anatomy, Physiology, Pathology, Pharmacy and all the correlative branches of a true, safe and philosophic method of practice. In its proper place we shall endeavor to show that Allopathy is, at this day, mainly what it was more than two thousand years ago, that instead of taking advantage of the developments of science and adapting its methods thereto, it has adhered pertinaciously to the dogmas that originated in and beyond the dark ages.

Hippocrates was born at Cos, 460, B. C., and according to his own account, is, by his father, the eighteenth lineal descendant from Æsculapius. He was brought up amongst the Asclepiadæ of the temple at Cos, and studied his profession under Herodicus, the inventor of gymnastic medicine. He early inclined to the doctrines of Heraclitus of the Phythagorean School, who applied his pecu-

liar theory of elements to explain the phenomena of disease, and the operation of remedial agents.

Much of the life of Hippocrates was spent in traveling abroad, in the earlier portion of it, for the purpose of gaining knowledge; but subsequently, after he had acquired an extensive reputation, his services were sought by persons of rank in foreign countries, and his aid was also required in staying the ravages of the plague, and other epidemic and endemic diseases then incident to the cities of the East.

In his philosophy, Hippocrates adopted the notions of Pythagoras, whose principal doctrine was, that fire is the prime origin of all matter, and that by the collision and peculiar combination of its particles, which are in perpetual motion, the four elements are produced.* This theory was the basis of the entire Pathology of Hippocrates, as well as all his medical hypotheses, and is frequently alluded to in all his works.

Although he assumed and maintained certain theories, yet he may be considered the first who separated practical medicine from what was then styled philosophy, but which consisted mostly in groundless speculations. He investigated the natural and physiological forces of the organism, the phenomena of disease, its morbid causes, and thence derived his curative means and mode of treatment.

Although physiology was taught orally before the time of Hippocrates, yet he is the first in whose writings traces of that science appear.

To him we are indebted for the hypothesis of a principle called *nature*, (φυσις) influencing all parts of the body, superintending and directing all its motions, and possessing a kind of intelligence, thereby enabling it to promote those actions which are beneficial and repress the hurtful. Besides this primary principle, he conceived others of a subordinate degree termed powers (δυναμεις) which are concerned in the particular functions of the system.

The body is supposed to consist of the four primary elements, earth, air, fire and water, which being combined in different proportions in different individuals, give rise to the four different temperaments. These influence both the intellectual and physical portion of the organism, and constitute sources of disease, independent of circumstances, and cause those circumstances in different modes and in different degrees in different individuals.

One of the leading Pathological doctrines of Hippocrates was,

* Enfield.

that the fluids were the primary seat of the disease, a theory, which under the denomination of the Humoral Pathology, became the prevailing doctrine up to the commencement of the eighteenth century, and to this day has its advocates in some respectable writers. He held that the combination of the four elements, together with the four states or qualities with which they were affected —of hot, dry, cold and moist—gave rise to the four fluids or humors of the body—blood, phlegm, bile, and black bile—which originally tended to produce the four temperaments, and which in their turn, contributed to the excess or defect of each of the humors.*

Of course, all these notions, in the present light of science, appear sufficiently absurd. Instead of a certain principle, denominated by Hippocrates, Nature, and by others Vitality, to which Physiologists and Pathologists have been too prone to refer all the phenomena of life, both in health and disease, they are now understood to be the result, not of any single principle, but of the combined action of a variety of causes, "gravity, cohesion, elasticity, the agency of the imponderables, and all other powers which operate both on masses and atoms."† Instead, too, of four elements, modern chemistry is familiar with sixty-three, and instead of four states and four humors or fluids, there are many.

The doctrine of crises, or the material tendency of certain diseases to terminate favorably or unfavorably at given periods has more foundation in truth. These, according to Hippocrates, consisted of evacuations of various kinds, mostly from the bowels and skin, and a regulation of these evacuations constituted his most important indications, and the main part of his practice. He showed great sagacity and a power of accurate observation in watching the effects of external agents upon the system—such as temperature, influence of the atmosphere, the effect of particular situations, of the seasons, and all other circumstances that were calculated to operate upon the system.

Much difference of opinion exists respecting the extent of Hippocrates' Anatomical knowledge. After a careful examination of the subject, Le Clarc contends that it was little superior to that of his contemporaries.

Having briefly alluded to the history of Hippocrates, to some of his theoretical doctrines, and the amount of his knowledge on

* Bostock.

† Draper.

the different departments of medical science, we close our notice of him with a few observations respecting his method of practice.

One great principle that regulated his practice, was founded on his observation of the indications of nature; watching her operations in disease, regulating, controlling, increasing, or suppressing, and sometimes even combatting these.

In addition to the superintendence of nature, he recognized another principle, the establishment of a contrary state in the system, or in the diseased part. Repletion was to be relieved by evacuation, and *vice versa*, the excess or deficiency of any of the humors was to be relieved by such measures as would induce an opposite state.

The doctrine of critical evacuations has already been alluded to. These he promoted by purgatives, diuretics, sudorifics, etc., and we are sorry to add that he used the lancet, the scarificator, and the cupping glass, together with other violent means calculated only to diminish the vitality of the patient, and also his chances of recovery. He gave particular attention to the subject of diet, and the general subject of hygeine, both as to the cure and the prevention of disease.

Fortunately his Materia Medica consisted principally of vegetable remedies, and of these, mostly such as were innocuous or sanative in their effects. In the works ascribed to Hippocrates Alston found 300 vegetable medicines, 150 animal, and 36 mineral, the last embracing but few of those virulent poisons used so extensively and indiscriminately by many of his less scrupulous disciples of the present day. The celebrated Hippocratic oath abjures the use of all dangerous remedies or measures in the treatment of the sick.

Respecting the writings of Hippocrates, much uncertainty exists. Allusion has already been made to the fact, that many works once attributed to him, are now known to have been written by others. Of the seventy different treatises formerly supposed to be his, only twelve or fourteen are now claimed to have been written by him. The others are the productions of his son, his son-in-law, and other writers anterior and posterior to him.

There is no English translation of the writings of Hippocrates. With the exception of a few treatises, and the interesting abstract of J. R. Coxe, the English reader has no access to his works; yet every tyro in medicine will speak as familiarly of him as though he were a lineal descendant from the "Father of Medicine."—Fœsius and Haller have translated his writings into Latin, and

Gardeil into French. Kuhee has also published an edition nearly identical with that of Fœsius.

During the interval between Hippocrates and Galen, embracing a period of about five hundred years, but little progress was made in the science of medicine. The advance he made was so great, that no one for several centuries appeared who was able to proceed much beyond the point he had reached. As was the custom of the age, his profession was transmitted to his two sons, Thessalus and Draco, and it continued to descend in a hereditary line for several generations. His son-in-law, Polybus, is said to have sustained the credit of the profession as left by his distinguished relative, and many of the treatises once ascribed to Hippocrates are now supposed to have been written by Polybus.

The only remaining names of any distinction among the Asclepiadæ, are Diocles of Carystus, and Praxagoras of Cos. The former was noted for his learning and practical skill, the latter for his knowledge of Anatomy, and the attention he gave to the subject of the pulse.

About 300 B. C. appeared Chrysippus, who may be regarded as the first Reformer in Medicine. He totally discarded all blood letting, either by the lancet, the scarificator, or any other means. Instead of the powerful and deleterious agents employed by his contemporaries, he used a simple and innocent medication. Yet he was without the Asclepiadæan pale, and looked upon as an *irregular*, though honorable mention is made of him by Pliny, the historian, and he had as his pupils and disciples, Herophilus and Erasistratus, who became distinguished professors in the celebrated Alexandrian school. This was founded through the munificence of the Ptolemies, about 300 B. C., and contributed largely to the advancement of medical science, as to science in general. In addition to the medical skill awarded to Chrysippus by Pliny, he says of him, "*Horum* (referring to the physicians of his time) *placita Chrysippus ingenti garulitate mutavit.*"

His pupils, Herophilus and Erasistratus, became distinguished anatomists, and are the first names *positively* mentioned as having dissected the human subject. The knowledge of almost every portion of the human organism was improved by them, particularly of the structure of the heart, the blood vessels, the brain and nerves, and they seem to have had some knowledge of the system of absorbents. Galen, in all parts of his writings, makes reference to the works of these two distinguished men. Herophilus is mentioned by Galen as being the first who paid minute attention to the varieties of pulse as a means of diagnosis.

We must not neglect to mention the name of Theophrastus, a native of Eresus in Lesbos, a fuller's son, at first a pupil of Plato, and afterwards of Aristotle. He was born 385 B. C., and died in the 107th year of his age. Amongst his valuable writings on a variety of subjects, is a work on plants, the merits of which were duly acknowledged by Pliny and Dioscorides.

Soon after the establishment of the Alexandrian school, a circumstance occurred favorable to the improvement of medical science. We allude to the separation of the profession into distinct departments. Anterior to this period, every department of medicine proper, and surgery, were united in the same individual, thus precluding individual application to any particular branch. The first divisions admitted into the schools and sects, were Dietetics, Pharmacy and Surgery; the first, however, implying more than its present acceptation, being more like the *medicus* or modern practitioner.

Allusion has already been made to the two sects, originating in the rival temples of Cos and Gnidos: the Dogmatists of the former, and the Empirics of the latter. Although the distinction upon which these sects were founded had been for some time discussed, yet it was not until shortly after the establishment of the Alexandrian school, that the schism became publicly known. Then the entire medical world became arrayed on one or the other side, and as has been already intimated, the distinctions have continued, to some extent, even to the present day, occasionally interrupted, however, by the appearance of other sects, the Methodic, Episynthetic, Pneumatic, Eclectic, &c.

In pursuing the history of medicine, these distinctions cannot well be lost sight of, since in estimating the comparative merits of any sect, or method of practice, it will be important to know from which of these it emanated. As to their relative merits, we may simply remark, that as in most instances where an extreme view alone is entertained, either would to a certain extent be erroneous, or not sufficiently comprehensive; so, in this instance, we may regard the "golden mean," or rather, a partial combination of the two as nearer the truth.

Very few of the writings of the Empirics have reached us.—The best and most favorable account of the sect is given in the treatise by Celsus, who seems quite inclined to advocate their claims.

CHAPTER II.

Christian Era—Medicine in Rome—Transfer of the Asclepiadæan rites to Rome—Archagathus—Asclepiades of Bithynia—Chronic and acute diseases—Themison—Methodic Sect—Thessalus—Soranus—Cælius Aurelianus—Hippocratic Doctrine of Therapeutics—Pneumatics—Episynthetics—Celsus, the First Native Roman Physician—Andromachus—The Theriaca—Pliny, the Elder—Dioscorides—Galen: His Doctrines, Practice—Modern Practice.

Having pursued the history of Medicine to the beginning of the Christian era, or the period of the decline of Grecian Literature, we retrace our steps somewhat, to glance at the state of medicine in Rome. During the earlier periods of the Roman Empire, whilst the foundations of her national greatness were being laid, in the spread and triumph of her armies, but little attention was bestowed upon the sciences, and particularly that of medicine.—Pliny says, that for six hundred years, Rome was without a physician; which remark does not imply, probably, that during that time no means were employed to heal the sick, but that it was not regarded as a distinct subject of pursuit, or that no particular individuals became eminent in that department of science.

In all the arts of life, the Romans, in their earlier history, were servile copyists of the Greeks; and in medicine, whenever they departed from them, it was to adopt the incantations and rites of the earliest and most superstitious age. Livy, who wrote during the refined and splendid Augustean age, mentions many instances of their superstitious belief, without indicating any dissent from them. During the prevalence of a fatal epidemic, the Sibylline leaves were consulted, when it was enjoined that the worship of Æsculapius should be transferred from Greece to Rome. A special deputation was sent; the deity, unwilling to leave his native land, was seized by stratagem, and conveyed to Rome in the form of a serpent. He was received with transport, a temple was erected on the banks of the Tiber, ceremonies instituted, and the plague was stayed.*

From Pliny, we learn that medicine was the last of the sciences introduced into Rome; that its practice was prohibited, and its practitioners banished. About 200 B. C., Archagathus, a Peloponnessian, settled in Rome, as the first who made the practice of medicine a distinct profession. At first he was received

* Livy.

with respect, but his harsh treatment and ill success soon created dislike and disgust, and he was banished. His practice was mostly surgical, pursued with the knife, and painful escharotics.

For the next century, but little is known of medicine in Rome, except that it existed in rites and ceremonies, in the hands of the priesthood. Cato, who made a few improvements in medicine and introduced several new articles into the materia medica, is said to have written several treatises on medical subjects, though little is known of him or his writings.

The prejudices against Archagathus having gradually subsided, another individual appeared, Asclepiades, of Bithynia, who acquired and maintained a large share of popularity. He first came to Rome as a teacher of Rhetoric, but failing in this, he gave his attention to medicine. By his natural shrewdness, his self reliance, and by decrying the systems and practices of his predecessors, by flattering the weaknesses of his patients, by employing simple means of cure, and relying upon the recuperative powers of nature, he became very eminent. He also possessed many solid attainments, and made valuable contributions to the stock of medical knowledge. He is said to be the first who made the distinction of chronic and acute diseases; a distinction true in nature, and followed by the ablest nosologists even to the present time. He adopted Epicurus' doctrine of atoms and pores, proposing a new theory of disease, viz: that the chronic originated in a constriction of the pores, or an obstruction of them by an excess of atoms, and the acute upon a relaxation of the pores, or deficiency of atoms.

His pupil and successor, Themison, of Laodicea, was the founder of the Methodic sect, which for a time eclipsed its rivals, the Dogmatic and Empiric. Rejecting the speculative hypotheses of the former, and the loose unmethodic practice of the latter, by adopting the good of both, he established upon the leading propositions of his preceptor, a system more rational than either.—Based upon the doctrines of constriction and relaxation of Asclepiades, his remedial means were mostly relaxants for the former, and astringents for the latter, to which he added a mixed state, certainly not very intelligible.

With the Methodics, contemplating disease as a state of constriction or relaxation, originated the doctrine of Solidism, opposed to the Humoral Pathology of Hippocrates. No work of Themison is extant, but Cælius Aurelianus, a zealous advocate of the Methodics, has given an account of his practice. Long after the death of Themison, the doctrines of the Methodics continued to be

adopted in Rome in preference to those of the Dogmatists and Empirics.

About half a century after Themison, appeared Thessalus, who, through cunning, artifice, and self-confidence, acquired much wealth and reputation. By decrying the theories and practice of others, and claiming many discoveries to himself, he assumed the title of conqueror of physicians. His theories seemed to consist of the atoms and pores of Asclepiades, and the constriction and relaxation of Themison. He introduced the term *metasyncrasis*,* by which he meant an entire change in the body, or particular portions of it, which doubtless has a foundation in nature, when we consider the effects of those chemical forces constantly in operation in the animal system. In the metasyncrasis of Thessalus, we have doubtless the first glimpses of the idea of *revulsion*, the basis of the *allos pathos* of modern medicine.

The next name claiming our attention is that of Soranus, a celebrated practitioner of Rome. He was a native of Ephesus, studied at Alexandria, a strict Methodic, and highly esteemed for his worth and talents.

We next meet with the name of Cælius Aurelianus, one of considerable importance in the history of medicine. Regarding the age in which he lived, and the place of his nativity, there is much uncertainty, though he is generally supposed to be a native of Numidia, and to have lived during the first century of the Christian era, whilst others place him a century later, making him a contemporary with Galen. Many of his writings are extant, and they furnish a valuable account of his own practice, as well as that of his contemporaries.

He adopted the division of Asclepiades, of diseases into acute and chronic, nearly corresponding to the ideas of constriction and relaxation; and upon these were founded his principal indications of cure. His writings are eminently practical, dealing but little in recondite speculations, on which account they have contributed lagely to the advancement of medical science. He, however, as well as the entire Methodic sect, committed a great error in opposing the doctrine of Hippocrates and his followers, that *disease* is something opposed to the natural laws and forces of the organism, and that if the disease is removed, it must be either by the aided or unaided physiological forces of the system. This point is one of vital importance, and is worthy of more attention than it usually receives. All disease is either obstruction or de-

* From μετα, "*indicating a change*, and συγκρινω, "*I compose.*"

bility; one usually the consequence of the other, or they may both exist at the same time, either general or local. Such obstruction or debility may be manifested by pain, heat, swelling, or increased action of the heart and arteries, all caused by the normal recuperative powers of the system to remove the obstruction or debility. The pain, then, the increased pulse, the heat, etc., are not the disease, but merely the symptoms of disease, the monitors of the system, informing us that disease is present, and they are caused by the efforts of the *vis medicatrix naturæ* to remove the obstruction or debility. The doctrine of Hippocrates, then, that disease is removed by the restorative powers of Nature, is a sound doctrine, and in harmony with all the developments of modern science, and it follows that the nearer our remedial means conform to the physiological powers of the system, the better are they adapted to the cure of disease. Hippocrates was right in promoting the natural actions of the system; Cælius Aurelianus, with nearly the entire medical world since his time, was wrong in opposing them.

We have observed the rise and progress of three different sects in medicine, the Dogmatic, the Empiric, and the Methodic. We now approach a fourth, the Pneumatic. Half a century after the death of Themison, or about the beginning of the Christian era, a physician by the name of Aretæus introduced the doctrine of *spirits* (πνευμα) to the different proportions of which he referred all the states of the system in health and disease. The *pneuma* to Aretæus and the stoics generally was regarded as an element differing from the four of Hippocrates, and supposed to be more ethereal than that of atmospheric air, and upon the agency attributed to it were founded the doctrines of the Pneumatics. Some writers claim Aretæus as a supporter of the Pneumatics, whilst others claim him as an Eclectic.

During the first century of the Christian era, a sect arose, termed the Episynthetics.* But little is known respecting them. Leonidas of Alexandria appears to be the first name found in connection with this sect. Their object seemed to be a reconciliation of the tenets of the Methodics with those of the Dogmatics and Empirics. They resembled Eclectics, a sect founded by Agathinus, of Sparta, early in the second century. The Eclectics professed to select from other sects such principles and modes of practice as appeared to them the most valuable. We trust they succeeded better than their namesakes of modern times.

*Επισυντιθημι, *to collect, to accumulate.*

We come next to a name that will ever stand high on the records of Medical Science, that of Celsus. We speak of him here, because of the uncertainty that exists respecting the age in which he lived, his birth-place, or even his actual profession. We have taken some pains to investigate this matter, and the best opinion we can form is, that he was a native of Rome, and that he lived during the earlier portion of the first century, and from the manner in which he speaks of diseases and their treatment, it is evident that he had practical experience in the profession, though his name is not found amongst the physicians of Rome enumerated by Pliny in his history of Medicine.

He is the author of a valuable treatise consisting of eight books. His observations on diet, and the general principles of Therapeutics and Pathology, on the nature and treatment of diseases, on Pharmacy and Surgery, are valuable, and show, that for the age in which he lived, these departments of medical science had reached a very considerable degree of perfection. He held, with the most enlightened medical reformers of the present day, that "fever consists essentially in an effort of the constitution to throw off some morbid cause."* In this enunciation we see the embryo of the doctrine of a *vis medicatrix naturæ*, upon which alone can be based a correct and rational system of medication. Although Celsus admitted a principle which alone could lead to a correct practice, yet his practice was not at all times in conformity with that principle. How he could reconcile blood-letting, and the use of poisons with a *vis medicatrix*, or *vis conservatrix*, is, we confess, beyond our powers of logic. He is said to be the first native Roman physician whose name has reached us. Previous to him, all those who acquired any distinction in Rome were either natives of Greece or Asia, their own practioners being slaves or persons of low degree.

About this period appeared several writers on Pharmacy, whose works have been transmitted to us. The most celebrated of these is Andromachus, a native of Crete. He is the inventor of the celebrated *Theriaca*,† containing seventy-two different ingredients, the principal of which was the dried flesh of vipers, for the bite of which, as its name denotes, it was supposed to be an antidote. It gained a reputation also for being almost a *panacea*, being prescribed for almost all diseases, holding a place in English Pharmacopœias until the close of the last century, and in the *Codex* of

*Bostock.

†Θηρ, "*a venomous animal*," ακεομαι, "*I cure.*"

the Faculty of Medicine of Paris to the present day. Andromachus lived under Nero, and is the first person on whom the title of Archiater, or principal physician, was bestowed by the emperors—a title in vogue for several centuries.

We notice next the elder Pliny, the naturalist. He was born 23 A. D., and lost his life in his 56th year, during an eruption of Mount Vesuvius, when the cities of Pompeii and Herculaneum were buried. His irrepressible curiosity and temerity led him too near the terrific scene, and he fell, suffocated by the dense vapors and sulphurous fumes. Though never devoted to the medical profession, yet his writings afford much valuable information, particularly as regards the history of medicine, its condition and modes of practice during his own time, and many interesting details respecting pharmacy and materia medica.

Dioscorides, supposed to be a contemporary of Pliny, has left some valuable treatises on materia medica, and the general state of medicine and medical practice of the age in which he lived, which was mostly empirical.

We come next to a name that marks an era in the History of Medicine, the immortal Galen. It would ill suit our present purpose to make even a brief allusion to the doctrines and the system of practice of this great man. We must content ourself with a slight sketch of a few particulars.

Galen was born 130, A. D., at Pergamos, a city of Asia Minor, celebrated for a temple dedicated to Æsculapius. His father Nicon was a wealthy scholar, and he spared nothing in the education of his son. He studied successively in the school of the Stoics, the Academicians, the Peripatetics and the Epicureans, receiving some of the tenets of all except the last. Thus prepared, he commenced the study of medicine at seventeen. He travelled much in many countries; studying several years at Alexandria, he proceeded to Cilicia, Palestine, Crete, Cyprus, Lemnos and Syria, and at the age of twenty-eight, returning to Pergamos, having already acquired much skill and considerable reputation. Four years afterwards he went to Rome, whence he was driven in five years by the jealousy of the Roman physicians. He returned to Pergamos, but was soon recalled to Rome by Marcus Aurelius, where he continued to reside until his death, at the age of one hundred years.

Galen was a voluminous writer. Suidas states he had written over five hundred books on medicine and philosophy, and two hundred and fifty on other departments of science, and he says himself that a portion of his literary compositions were destroyed by

fire with the temple of Peace, at Rome. For more than *twelve centuries*, his writing were the highest authority in medicine! What other name connected with the profession can boast a fame so lasting? How striking the contrast with the myriads of names, and theories that have sprung up in modern times, and in times scarcely more modern, have been consigned to a merited oblivion! Save the compend given by Coxe in his "Epitome of Hippocrates and Galen," no English translation of his writings has appeared, yet he is referred to with as much complacency as though he were a cotemporary, and had written in our own language.

For even an abstract of the medical doctrines of Galen, we must refer the reader to the "Epitome" mentioned above. He denied allegiance to all the different sects of his time, the Dogmatic, the Empiric, the Methodic, the Pneumatic, the Episynthetic, and the Eclectic, though he claimed to profit by the good of all, in which sense he might be regarded as Eclectic. He had great respect for the opinions and methods of Hippocrates, to whom he acknowledged his indebtedness for most of the material that constituted the basis of his own works.

He maintained three principles as composing animal bodies—*solids*, the *humors*, and *spirits;* four elements, *earth*, *air*, *fire* and *water;* four fluids, *blood*, *pituita* or phlegm, *bile*, and *melancholy* or black bile; four states, *heat*, *cold*, *moist* and *dry;* and the four temperaments, *sanguine*, *lymphatic*, *choleric* and *atrabilious* or melancholic. These were similar to the notions of Hippocrates, though Galen embodied them into a more compact and systematic form. Although modern science has demonstrated the untenableness of most of these distinctions, yet we are not to reject the reasoning founded upon them, since the phenomena of disease are the same, whether we admit four elements or sixty-three. The fluids and states and temperaments of Hippocrates and Galen, are not altogether inapplicable to modern science; and if we regard their four elements as the *sources* of organized beings and of vitality, they are strictly true, although they consist of many *elements.*

Galen was superior to Hippocrates at least in one particular.—He established a more rational and truly philosophical method of treating medicine, to understand which would require a complete knowledge of his system, or of the principles and practice of medicine as maintained by him. His reliance in the cure of disease is chiefly upon the efforts of nature, and the physician can only aid nature in those efforts. "That which nature cannot effect," he says, "neither can the physician, who is only her assistant; but

he aids nature by seconding her efforts, or by following all that can at times be accomplished by herself."* Would that his successors had adhered to a principle so sound, so rational, and so philosophical, *and had adapted their remedial means thereto!* Instead of the dangerous and violent means now employed, medicine could boast of innocuous remedies, and a sanative medication.

So far as theories in medicine are concerned, the *old school* of medicine have made but little advance since Hippocrates and Galen. "In truth, it may be affirmed, that nearly all, if not the whole, of past and present theories, *are really to be found*, at least in embryo, in the writings of these two great men."† We do not claim that the *practice* of Hippocrates or Galen was conformable to their *theory*, for there can be no harmony between the "efforts of nature" and blood letting, or deadly narcotics or poisons, since nature accomplishes none of her ends in this manner, either in health or disease. If, according to the author quoted above, all past and present theories have been derived from Hippocrates and Galen, it is evident that present *practice* differs from their *theories* far more widely than did that of those two authors of all the theories.

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* Coxe's "Epitome," p. 35.

† Coxe, p. 33.

CHAPTER III.

Termination of the Dark Ages—Sextus Empiricus—Oribasius, etc.—Arabic School of Medicine—How founded—Alexandrian Library—Measles and Small Pox—Chemistry—Ahrun—Serapion—Alkhendi—Rhazes—Chemical Remedies—Ali-Abbas—Avicenna—The two Mesues—Albucasis—Avenzoar and Averroes—Arabic Repository of Science and Art—Arabic Improvements—Alchemy—Constantinus Africanus—Chemical Medicines—Contributions of Alchemy—Crusades—Salerno—Mondini, the first Public Dissector—Gilbert Anglicanus, the first English Medical Writer—Capture of Constantinople—Revival of Letters—The Reformation—Art of Printing Publication of Clinical Reports—Mercury—Antimony—Chairs of Medicine in the Universities—Linacre—Medical Chairs in England—Sudor Anglicanus—Petussis—Sea-Scurvy—Leprosy—Paracelsus—Mercury—Lues Venerea—Its History—Quacks.

We have now reached a period in the history of medicine near the middle of the third century, the approaching twilight, if we may so speak, of that moral and political night of six centuries, appropriately and significantly denominated the "dark ages."—With the Roman empire, declined the arts and sciences, and the cultivators of medicine in Rome after Galen are few. We mention Sextus Empiricus, a contemporary of Galen, who doubtless derived his cognomen from the sect whose cause he espoused, in opposition to the Dogmatists. He gained some celebrity, and was familiar with the learning of his time. Some of his writings are extant. Oribasius, in the fourth century, Aetius in the fifth, Alexander Trallianus, and Paulus of Ægina in the fifth, were all zealous advocates of Galen and his medical doctrines, though they contributed little that is new, except a few surgical operations by Aetius, and a treatise on midwifery by Paulus, more complete than any that had preceded it. With Paulus terminated the Greek School of Medicine, and the Roman with Alexander Trallianus.

We now approach the Arabic school of medicine, the origin of which is singular and interesting. After the decline of Grecian and Roman literature, Alexandria still retained its reputation as a school of medicine. Though its glory was waning, yet the distinction of its former professors, its library of seven hundred thousand volumes, and its connection with other institutions, caused it still to be regarded as the seat of learning. But in the seventh century, Alexandria was conquered by the Saracens, and its mag-

nificent library burned. At the present day, there might be many times seven hundred thousand volumes of books destroyed, and the world and literature be gainers thereby; but then, the Alexandrian library was the great repository of nearly all the literature and science of the world. However, a few books were saved, and amongst them the writings of Galen. There were amongst the Arabians men capable of appreciating them, and at an early period of the Saracenic empire, they were held in high estimation. They were translated into the Arabic language, commented upon, illustrated, and soon acquired a celebrity nearly equal to what they had enjoyed amongst the Greeks, in whose language they were written. Thus began the Arabic school of medicine.

The successors of Mahomet, after having completed their conquest over a large portion of the civilized world, commenced the cultivation of the other arts and sciences, in addition to medicine. They extended their patronage to literature, and many works of the Greek philosophers were translated into the Arabic. About the middle of the eighth century, the cultivation of literature and science was commenced in great earnest, but the spirit of Mahomedanism is averse to the spirit of improvement, and but little was accomplished. This remark, however, does not apply strictly to medicine. Although they most religiously followed the doctrines of Galen, yet he was thoroughly studied, and careful attention was given to the practice of medicine. We are indebted to the Arabians for an account of some diseases, which either made their appearance about this time, or had escaped the notice of their predecessors. We allude to the measles and small pox.

About this time we discover the first distinct traces of the Science of Chemistry, the Arabians being the first who cultivated it as a science, or made it subservient to the purposes of medicine. The actual origin of chemistry is uncertain. A few chemical processes were known to the Egyptians and the Jews, but to the Arabians are we indebted for applying it to any definite purpose, and elevating it to the rank of a science. The progress of chemical science, and its relations to medicine amongst the Arabians, will be best seen in connection with those names distinguished for their successful cultivation of medicine.

The earliest Arabian writer whose name has reached us is Ahrun, a priest of Alexandria. In his work entitled the "Pandects," is the first description of the small pox. He was contemporary with Paulus in the sixth century, at which time medicine amongst the Arabians was cultivated as successfully as with the Greeks. During the next three centuries there are no writers of

sufficient celebrity to claim our notice here. After this long interval, the first name deserving attention is Serapion, a native of Damascus, who lived in the ninth century. His treatise, "Therapeutica Methodus," written in Syriac, was designed to incorporate the Greek system of medicine with that of the Arabians.—He also improved the preparation and composition of medicines, and added some new articles to the materia medica.

Contemporaneous with Serapion, lived Alkhendi, distinguished for his varied learning, and his multifarious writings on almost every branch of human learning. He was styled "the subtle philosopher, the learned physician, and the Greek astrologer."—With Alkhendi originated what afterwards in the latter part of the sixteenth century, became the Iatro-mathematical doctrine of Borelli, and later of Bellini, viz: the application of mathematics to the administration of medicine, and an explanation of their mode of action. He applied the rules of geometrical proportion and of musical harmony to the same purpose; a doctrine sanctioned by some of the most learned men of Europe until late in the eighteenth century.

We mention next one of the most illustrious of the Arabian School of medicine, Rhazes, born at Irak, in Persia, in the ninth century. He was a voluminous writer, some of his treatises having reached us. His "Continens," and other works, give an account of medical practice in his own time, which was chiefly founded upon that of Galen. He also wrote a book of "Aphorisms," though far inferior to those of Hippocrates, whose works the Arabians also possessed. They, however, preferred the metaphysical refinements, and the elaborate arrangements of Galen, to the simplicity of Hippocrates. Rhazes gives a correct and elaborate account of the small pox and the mode of treatment. He is the first who described the measles and their treatment. He made some improvement in Surgery and Pharmacy, and with him originated the employment of chemical remedies in the treatment of disease. Medicines derived from the three kingdoms of nature had been used from the origin of medicine, but Rhazes is the first who applied distinct chemical processes to the pharamaceutical preparation of medicines.

Soon after Rhazes, appeared Ali-Abbas, named the "Magician." He is the author of "Opus Regium," which contains a view of the state of medicine in its various branches.

About a century later, in the year 980, Avicenna was born at Bochara. He was thoroughly educated in the Aristotelian logic and dialectics, and afterwards studied in the schools of Bagdat.—

He gained great celebrity for the extent and variety of his attainments, being an enthusiastic cultivator of every department of learning. Yielding to the spirit of his time, he imagined himself the subject of supernatural gifts. His fame principally rested upon his "Canon Medicinæ," which became the standard work and text book for several centuries, and acquired for him the title of "prince of physicians." With the Arabians, and even the Europeans, it superseded the writings of Galen until the revival of letters, and had not lost its authority two centuries ago. It is now regarded, however, as an ill-digested and servile compilation of Galen and others, he having added nothing new or valuable, either as the result of his observations or in the way of practice.

Two Arabian writers by the name of Mesue, one in the eighth century, the other in the tenth, deserve a passing notice. They were Nestorian Christians, but practised medicine at Bagdat. The elder Mesue is said to be the first who made complete and correct translations, into Arabic, of the writings of Hippocrates and Galen. The younger Mesue composed a treatise on materia medica and pharmacy, held in high estimation as late as the sixteenth century. It gave an account of the science, as it existed when he wrote, and contained several new remedies.

The last native Arabian who gained much celebrity, is Albucasis. But little is known of his personal history. He is distinguished chiefly for the advancements he made in surgery, which were considerable, though in the present improved state of surgical operations and treatment, his would appear awkward and cruel. He was a bold operator, making free use of the knife and actual cautery. For several centuries his works were used as text books, and his modes of operating followed.

In connection with Arabic medicine, we mention two more names, who though born in Spain, and practised in that country, were of Saracenic parentage, Avenzoar and Averroes. Avenzoar was born at Seville at the end of the eleventh century, and died at the remarkable age of one hundred and thirty-five years. His principal work, the "Thaissyr," was written in the Arabic. He treats of surgery, pharmacy, and medicine proper. Aside from his personal merits, he is distinguished with his countrymen as having been the preceptor of Averroes, who was born at Corduba, and flourished in the twelfth century. He was of noble birth, and educated in the best Saracenic colleges in Spain. He was not a practitioner of medicine, but in his extensive acquirements he included the science of medicine, and wrote some valuable treatises, which, however, lack practical observation. With Averroes ter-

minated the Arabic, or Saracenic school of medicine, a school interesting to us, not so much from its absolute merits, not so much from the actual improvements and additions it made to medical science and medical practice, but because, during that long night of barbarism and superstition, from four to six centuries, which settled down upon the once refined and enlightened nations of the East, it became the *repository* of what Literature and Science, and the Fine Arts, had been attained by those polished people from whom they obtained them. But for the barbarous Saracen, nearly all traces of Greek and Roman Science and Art would have been lost to the world. At the revival of letters, after the twelfth century, almost the only avenue to what was once European literature, science and art, was derived from the Arabic language, and so completely was the Greek language lost, or rather superseded during the dark ages, that the writings of Hippocrates and Galen, and other eminent Greek authors, would doubtless have been entirely lost, had they not been recovered through the Arabic tongue.

Nor is this the only obligation the Arabians have conferred upon us, so far as medicine is concerned. We are indebted to them for the improvement of Pharmacy and the Materia Medica, and for the first descriptions of certain diseases. The principal additions they made to Pharmacy consist in the vegetable products of the southern and eastern portions of Asia, and some products of the various chemical processes with which they were acquainted. Amongst the former were rhubarb, tamarinds, cassia, manna, senna, camphor, various gums and resins, and a number of aromatics, which last were mostly brought from Persia, India, or the Oriental Isles.

Chemistry grew out of Alchemy—*Al Chemia*, "the secret," and its processes and manipulations were performed in an attempt to transmute the baser metals into gold and silver. The Arabians were acquainted with several processes as early as the fifth century, such as distillation, solution, evaporation, the combinations of various substances, the oxydation of some metals, and the formation of their salts. Gradually these methods were applied to the improvement of pharmacy, and they made a number of valuable additions to their materia medica.

Relative to the second particular, the description of new diseases, it has already been remarked that Ahrun, about the middle of the sixth century, mentions the small pox, and that in the ninth century Rhazes gave a distinct and reliable account of it, its symptoms and mode of treatment. We are also indebted to him for the

first description of the measles and their treatment. The small pox first made its appearance in the west at the seige of Mecca, though there are some reasons for supposing it to have been previously known in China and remote portions of India.

From the eighth to the twelfth centuries, whilst the Arabic school of medicine was in its most flourishing condition, with the Greeks and Romans, medical science was actually retrograding. The only efforts made for the improvement of the arts and sciences during this period, was in the eleventh century, by the Neapolitan schools at Monte Cassino, and Salerno. It was then that some of the physicians attached to the school at Salerno, wrote the verses on dialetic medicine, entitled "Medicina Salernitana;" a work, the principal value of which consists in affording us a very correct idea of the state of Italian medicine at that period.

About the end of the eleventh century, Constantinus Africanus, an African, as his name denotes, studied in the schools of Bagdat, and is said to have travelled as far as India in his desire for knowledge. On his return to his native land, he was regarded as a sorcerer, and to save his life was forced to flee to Italy, where he became attached to the school of Monte-Cassino. He translated in an imperfect manner, however, the works of Greek and Latin physicians, into Arabic, then the general language of science.

A writer, whose cognomen was Actuarius, and who lived in the twelfth century, is the first Greek physician who makes mention of chemical medicines.

After the extinction of the Saracenic school in Spain, in the twelfth century, three centuries of what may justly be denominated "dark ages," rested upon that country. Meanwhile, some dawnings of light began to appear in other portions of Europe.—The crusades awakened a spirit of inquiry, and the human intellect began to awaken from the slumber of centuries, yet the dim twilight of returning day was long, and oft obscured.

During the dark ages, what remained of literature and science was mostly with the monks, who were both ignorant and superstitious. The only department of science cultivated with any degree of ardor was chemistry, and this mostly for three objects; first and foremost, the transmutation of the grosser metals into gold; secondly, the discovery of a grand catholicon—a universal panacea; and thirdly, a universal solvent. Many of the alchymists of the dark ages were doubtless men of worth, actuated by sincerity of purpose, and who expended large fortunes in pursuit of what they deemed a blessing to the world, forgetting, however, that could

any substance, at the pleasure of the operator, be converted into gold, the gold itself would be of no more value than the baser metals; and that a grand *catholicon*, closing, as it were, the gate to immortality, would prove the bitterest curse the world has ever known; forgetting, also, that a univerval solvent could be contained in no earthly substance. However, these investigations, however futile for the purposes aimed at, resulted in vast good. By fostering a spirit of research, by acquainting the operator with the nature and properties of many of the substances with which he experimented, a knowledge of physical laws was gradually though slowly developed, and the foundation laid of the noblest and most splendid of sciences.

As allusion has been made to the Crusades, and as they are so intimately connected with the revival of letters in Europe, it may not be deemed out of place if we give here a chronological view of them.

The first crusade was commenced in 1096, the second in 1147, the third 1188, the fourth 1203, and the fifth in 1248.

Salerno, situated on the Tyrrhene sea, south of Campania, was a great outlet to the Crusaders in passing to Asia, in their expeditions against Palestine. Robert, of Normandy, stopped here to be cured of a wound he had received in the holy wars. This position of Salerno was doubtless favorable to its vitality, whilst the rest of the civilized world was slumbering beneath the darkness of ages. It was favored by especial privileges of the emperors, from whom it received the authority to confer diplomas upon its candidates. It granted regular medical diplomas to such students as had passed through a prescribed course of study, and had been subjected to a certain examination. From this circumstance the school of Salerno deserves our particular notice, since such an event marks an era in the progress of medical science. This school continued to flourish until the thirteenth century, when it was eclipsed by the universities of Bologna and Paris, and the general diffusion of medical science throughout Europe.

Although some attention had been given to the study of Anatomy in the earliest periods of medical research, and as we have seen, the human subject had been dissected, yet this was practised only in a very limited manner, and mostly for the benefit of individuals, rather than for purposes of general instruction. It was not until the period of which we speak that the study of human anatomy became an important branch of medical science. The first who succeeded so far in conquering the prejudices of his age as to

venture upon this improvement in the art of medicine, was Modini, professor in the university of Bologna. In 1315 he dissected publicly two female subjects, making drawings from nature. To him are we indebted for this process, as well as for having published the first anatomical plates. For three hundred years his plates and descriptions were used as a text book in the most celebrated Italian universities.

Early in the fourteenth century, or contemporaneous with Mondini, lived Gilbert, surnamed Anglicanus, the first English writer on medicine of whom we have any account. At this period learning of every description, and particularly medical science, in Great Britain, was at the lowest state of degradation. There were no means of public instruction. That light of science which had dawned from the south of Europe had not yet shed its rays upon the shores of Britain, and its learning, consisting of theologic disquisitions, was confined entirely to these works. His treatise entitled "Medicinæ Compendium," is of but little value, being more speculative than practical, more metaphysical than scientific.—Nevertheless, he made some improvements in pharmacy, and some additions to the Materia Medica.

During the fifteenth century, three events occurred very important to be considered in their bearing upon the revival of letters, and the impetus they gave to every department of science and literature; we allude to the capture of Canstantinople by Mahomet the Second, the Reformation under Luther, and the invention of the art of printing by Faust.

The Greek monasteries of Constantinople had for a long time been the place of refuge for learned men driven from Italy during its many wars, and they had taken with them the manuscripts of the ancient classical writers. On the fall of Constantinople, these monks, flying to Italy, carried with them their manuscripts, which for a long time had remained unknown to the rest of the world.—During this interval, a spirit of improvement had manifested itself in Italy, which was stimulated by the returned monks, who now became more aware of the value of their literary treasures.

The Reformation, as soon as the violent spirit of theological discussion to which it at first gave rise, had subsided, gave a new and a powerful impulse to the spirit of inquiry, and every branch of learning became an object of deep interest. The mind, so long bound by the shackles of religious thraldom, now being free from these, felt an equal freedom to investigate for itself the various subjects of learning, and the authority of Aristotle in philoso-

phy, and Galen in medicine, were no more received than that of the Pope in matters of religion.

The art of printing came in as a powerful accessory to the spirit awakened by the Reformation. The manuscripts, brought by the monks from the Byzantine capital, were multiplied by the press, a new impulse was given to classical literature, diligent search was made, other manuscripts were discovered, and vast accessions were made to the previous stock of knowledge.

The science of medicine claimed a full share of the benefits derived from the events to which we have alluded. The writings of the Greek Physicians were read in their own tongue, or in good Latin translations, instead of the Arabic. Although Hippocrates and Galen once more appeared in their own original language, yet Galen held the supremacy.

Mention has already been made of the custom of each patient treated at the temples of the Asclepiadæ, leaving a votive tablet on which was written an account of his disease, mode of treatment, etc. But in an age so remote, when so little comparatively was known even by those who practised the healing art, very little could be expected from a description of the patient himself. About the fifteenth century, however, the practice was commenced of publishing monographs of particular diseases, and cases, with reports of hospitals and other institutions. This has ever since continued to be a valuable auxiliary in the advancement of medical science.

We have already spoken of Alchemy, or Chemistry amongst the Arabians. It was early transferred to the different countries of Europe, especially those of the South. Although the object of their pursuit may be regarded as visionary, yet some of the European Alchemists gained great celebrity, and have left behind them works exhibiting a spirit of earnest inquiry, and much patient and philosophical research. We may mention Albertus Magnus, bishop of Ratisbon, Raymond Sully, a Spanish Ecclesiastic, and Arnaldus of Villanova, Professors in the University of Barcelona, all of whom flourished in the thirteenth century. Roger Bacon lived at the same time, and may be classed amongst the Alchymists, but his genius far outstripped the age in which he lived. During the fourteenth century *Mercury* and its compounds were added to the Materia Medica by John de Vigo, but until the time of Paracelsus, they were little used except externally. About the same time Basil Valentine, a Monk, discovered Antimony and although, as its name, (*anti monk*) denotes, it was fatal to some of his colleagues, to whom he administered it, yet it was employed as a medicine, and has

continued, with its twin brother, Mercury, for nearly four centuries to slay its annual hecatombs of victims, and they will continue their slaughter until banished from the Materia Medica.

We will here mention another feature favorable to the cultivation of science, the establishment of numerous universities in the South of Europe, in most of which the chair of medicine formed an important element. The University of Salerno, the first founded after the decline of the Roman Empire has already been mentioned. The next in order, and established soon after, was that of Montpelier, which maintained a high reputation for many centuries. Bologna had acquired considerable distinction as a school of medicine in the thirteenth century, and half a century later, medical lectures were delivered in the universities of Vienna and Paris.—About the same time medical schools were established at Padua, Pavia, Milan, Rome and Naples, and most of the other cities of Italy. In Northern Europe, the advancement of science and literature was much less rapid. Linacre, born at Canterbury, England, in 1460, after studying at Oxford, spent some time in Italy, and at the Court of Florence, in intercourse with the family of the Medici, acquired a taste for literature which was not lost in his own country. On returning to England, he was appointed royal physician, and through his influence, medical professorships were established in the Universities of Oxford and Cambridge, and the London College of Physicians was founded. By this time, a spirit of general improvement was manifest throughout Europe. The arts and sciences revived, philosophy was studied on a more rational plan, and with more definite objects, and medicine partook largely of the beneficial influence.

In 1486 a new disease made its appearance in England, which received the name of *Sudor Anglicanus*. This malady, characterized by profuse sweating, followed by coldness, extreme prostration and palpitation, terminating favorably or unfavorably in twenty-four hours, raged at intervals, until the middle of the sixteenth century.

The hooping cough, (*Petussis*) had its origin about the same time, though Sydenham speaks of it as having first made its appearance in his day, in 1680. The sea-scurvy also is first described in the latter part of the fifteenth century.

There has been much discussion as to the origin and nature of leprosy. Some suppose it first made its appearance in Europe during the dark ages, and was brought thither from Asia by the

Crusaders. Others suppose there were two species of leprosy, one indigenous to Europe, the other to Asia.

Chemistry had now become more extensively applied, in the preparation of medicines, and in interpreting vital phenomena, both in health and disease. This gave rise to the sect of Chemical Physicians, and they did much towards overthrowing the doctrines of Galen and his followers. They maintained that the living body is subject to the same chemical laws with inanimate matter, and that all the phenomena of vitality may be explained by these laws; propositions, very analogous to those established by modern science, though rejected for centuries. The principal of the chemical physicians was Paracelsus, a native of Switzerland, born 1493.

Paracelsus is represented as having been a man of great vanity, though from the enthusiastic manner in which he pursued the cognate sciences of chemistry and medicine, and from the positions he gained, and the influence he acquired, he must have possessed unusual talent and many attainments. In early life he travelled much, assuming the pompous titles of *Phillipus*, *Aureolus*, *Theophrastus*, and *Bombastus de Hohenheim*. He is the first who used mercury and its preparations to any considerable extent. Although mercury was known to the early Greek and Roman physicians, yet they regarded it as a dangerous poison, and excluded it from their materia medica. The Arabians first employed it externally in the itch, and other cutaneous eruptions. Geber mentions corrosive sublimate and the red precipitate, and Rhazes and Avicenna speak of the *external* application of mercurial preparations. In Europe, Gilbert, Theodoric and others, made outward applications of mercury as early as the twelfth century. Early in the sixteenth century, John de Vigo first administered mercury, in the plague. About the same period, Mathiolus also employed it internally in *venereal disease*.

As to the origin and history of this latter disease, there have been more speculation, and a greater diversity of opinion, than in reference to any other in the entire range of Nosology. Some suppose it existed amongst the Jews, in the time of Moses, and is referred to in the Levitical law respecting the uncleaness of the man with an issue mentioned in the fifteenth chapter of Leviticus. The word "ha-zab" in the original Hebrew, meaning the "man with an issue," is rendered in the Septuagint, in Greek, "*Ho Gonorreus*," the "man with a gonorrhea," and that no less than nine times.

Dr. Adam Clark, the learned Commentator, is of opinion that this refers to the disease known by that name at the present day,

(see his commentary) which would carry it back to 1400 B. C. It is also believed by some authors that the affliction of David, so bitterly lamented in the 38th Psalm, was syphilis in its more aggravated form. The same commentator mentioned above, thinks, "that it was in reference to some severe affliction which David had, after his illicit commerce with Bathsheba."

Some respectable authors maintain that *Lues Venerea*, as it is now known, made its appearance amongst the French soldiers at the seige of Naples, about the year 1493, and that thence it spread over Europe. Others believe it was brought from the West Indies by the followers of Columbus, who landed at Palos in Spain, March 13th, 1493.

Between these two extremes, as to the time of the appearance of Venereal Disease, no doubt the real truth may be found. We have taken no inconsiderable pains to investigate this matter, and the most satisfactory conclusion we can arrive at, is, that long ago, perhaps among the ancient Egyptians, the Jews, and in various portions of Asia, and later, amongst the Greeks and Romans, a *Lues* of the genital organs, of some description, was known; that this had been modified by time, climate and other conditions, until it became what it has been for the last four and a-half centuries; and it is not improbable, that under other modifying influences, it may hereafter assume quite a different aspect.

In support of the modifying influence of climate, habits of people, etc., in venereal affections, we may instance the "Yaws" of Africa and America, the "Sivvens," or "Sibbens" of Scotland, the "Judham," or "Juzam" of the Arabians and Jews, and the peculiarities of such affections formerly in Canada, and at the present day in Norway. For a detailed account of these varieties of disease, and their various modifying causes, we can here only refer the reader to those works where they are treated at length, particularly to "Good's Study of Medicine," and the various treatises on "Practice."

Respecting the origin, or the *originating cause* of this disease there has been much speculation. Without even alluding to the various theories on the subject, we may remark, that if it originated in any particular concurrence of circumstances, such as excessive venery, filthiness, exposure to morbid influences, etc., it may have had many points of origin, for such circumstances exist, and often at the same time, in various parts of the world. Had it originated with any one individual, and been propagated, and transmitted thence, we cannot well attribute its origin to any accident,

or particular circumstance or circumstances, that may not as well have occurred at some other time or place. We may very safely, then, infer, that it had many points of origin, and that, as has already been intimated, it may have existed under a variety of forms in different ages, and in various portions of the world.

On this subject we have but a word more, and that is in reference to those authors who are so particularly anxious to refer its origin to America. Whatever may be the opinion of such writers of the present inhabitants of America, or of those of any previous periods, or of their condition and habits, or the state of its climate, we cannot discover the existence of the circumstances as enumerated above, in any period or portion of American history, palpable as they have existed from time immemorial in those *hives* of human beings in the cities of the East, and of later times in the cities and larger towns of Europe. When the disease, or something similar to it, broke out amongst the French soldiers at the siege of Naples, the term "Morbus Gallicus" was a favorite appellation with English, Spanish, and other writers—a slight exhibition of national vanity in attempting to rid their own skirts of so loathsome and filthy a disease. Actuated by a similar feeling, a large number of European writers have expressed the opinion that *Lues Venerea* was introduced into Europe by the sailors of Columbus after his return from his celebrated voyage of discovery. But in support of such an opinion, or *conjecture*, rather, we have been unable to meet with one well authenticated *fact*. Columbus landed at Palos in Spain, March 13th, 1493, and it is asserted by some authors that this disease actually made its appearance at Naples some weeks before this time, nor are there any evidences that Columbus, or any of his followers had intercourse with the soldiers at Naples.

No such malady is mentioned by any of the early historians of America. Peter Martyr, physician to Ferdinand and Isabella, at the time, was at Barcelona when Columbus returned, yet in his writings there is no mention made of such a disease. Besides, of the scores of works and treatises written on Syphilis, after its appearance at Naples, and spread over Europe, not one, for the first thirty or forty years, ever conjectures even, that it was brought from the American Islands.

There is incontestible evidence, however, that this disease existed in Europe many centuries ago, and in England at least three centuries before Columbus sailed for America. In 1717, Mr. Becket submitted a paper to the Royal Society, and another in 1718,

in which he shows clearly that the *Gonorrhea* was well known as early, at least, as 1162, under the name of *brenning* or *burning*. An English statute, dated 1163, against stew-keepers, or bawdy houses, says, "No stew-holder to keep any woman that hath the *perilous infirmity of burning*." In an old manuscript, written 1390, Mr. Becket found a recipe for "*brunning of the pyntell*," (burning of the penis,) "yat man call ye *ape galle*"—*ape galle* meaning a *running sore* near the *apron*.

In regard to this whole matter we may conclude,

First. That *Lues venerea* has existed in some form from early antiquity.

Second. That it may have had many points of origin.

Third. That it was not carried to Europe by Columbus.

Fourth. That in 1493–4–5, a very aggravated form of this disease made its appearance in Europe.

Fifth. That it existed on the continent of Europe, and in England, centuries before the discovery of America.

There is no matter connected with any department of medical science, more enveloped in mystery, than the *origin* of various diseases, and particularly that class called contagious. That problem has never yet been solved.

We have remarked that Paracelsus was born in 1493, the same year *Lues Venerea* first appeared at Naples. He made extensive use of Mercury in the treatment of that disease, as well as many others, and since his time, a period of nearly four centuries, this agent, together with its various preparations, has been exhibited more extensively in the treatment of disease, than any other article in the entire materia medica, notwithstanding its destructive effects, often producing a more violent and lasting *disease* than the one it was intended to cure. This we believe was the boasted *elixir vitæ* of Paracelsus, the universal remedy, the "*grand Catholicon*," for which mankind had so long been in search. He proclaimed to the world that in consequence of his discovery they would no longer have use for the writings of Galen and Avicenna, and he burnt them in public. In spite of his elixir, however, which was to procure exemption from disease and death he died at the early age of forty-eight. Notwithstanding this circumstance, so humiliating to his advocates and followers, his doctrines were not abandoned, and his remedies continued in use. So extensively was mercury or quick-silver employed by Paracelsus and his followers that they received the cognomen of "*Quacks*," from the German name of that metal, *Quacksalber*. (See Parr's Medical Dictionary, Ar-

ticle Quack.) We would in all candor inquire, then, to whom this term more properly applies at the present day, to those, who, although without the pale of what a certain class of physicians are pleased to denominate the "Regular" school, employ a safe and sanative medication, or that *Regular* school itself, who still employ the *Quacksalber* of Parcelsus, and boast of it as their "sheet anchor," though its destructive and loathsome effects may be witnessed in every neighborhood, in necrosis of the bones, in their exfoliation, in once healthy constitutions made pale and emaciated for life, in walking skeletons, and in scores of premature graves!

CHAPTER IV.

Beginning of Sixteenth Century—New Impulse to Letters—Revival of the Hippocratic Doctrines—Their Materia Medica—Anatomists—Physicians—Vesalius—Contest of Galenists and Anatomists—Renewed Study of Anatomy—WILLIAM HARVEY—Discovery of the Circulation—Its Opposition—Symphatcis—Malpighi—Boyle—Establishment of Chemical Science—Superstition—Chemical Physicians—Ferments—Sylvius—Willis—Modern Chemical Views—SYDENHAM—His Physiology—Pathology—Materia Medica—Distinction of Symptoms—Medical Topography—Iatro-chemists—Iatro-mathematics—Borelli.

We have now brought our history to the beginning of the sixteenth century; a period when the light of progress and improvement was bursting forth from every quarter, and when every department of science was investigated with enthusiasm, and upon a plan far superior and more correct than hitherto, a plan founded upon the observation of facts and phenomena, and which ultimately led to the establishment of those principles, which resulted in the triumph of truth and philosophy over error and superstition. A taste for literature also remained, and the works of Hippocrates were read in the original Greek, which led to a higher appreciation of his medical doctrines, and a new school of medicine was formed, called the Hippocratean, the design of which was to establish all their theories strictly upon the inductive method. Although this plan was not always strictly adhered to, yet they made many permanent and valuable improvements upon former methods of philosophizing.

The contest between the Galenists and Chemists, which had been so active during the fifteenth century, still continued during the sixteenth, but conducted by abler men, and upon more rational principles. According to Bostock, the Galenists were more scientific and learned than the Chemists. The former consisted of the professors of the universities, and what may be styled the "regular practitioners." They collected facts, and observed the phenomena of disease. Although their prescriptions were complicated, and often, doubtless, combined without a definite understanding of each ingredient, yet their materia medica was derived principally from the vegetable kingdom, and from what we know at the present day we may conclude that their remedies were more

certain in the cure of disease, and less dangerous in their tendencies than those derived from a materia medica in which Mercury and Antimony held a conspicuous place.

The mineral, or Chemical physicians of the sixteenth century were "the bold empirics of the day, without learning or experience, but they endeavored to supply the deficiency by confidence and temerity. They discarded the long prescriptions of the Galenists, rejected many of the articles of their Pharmacopœia, while they introduced the more active metallic preparations, and made free use of the most powerful remedies of all kinds. It appears that upon the whole, the Chemists (or mineralites) like the analagous characters in the present day, acquired a greater share of popularity than their opponents. Their arrogant pretensions, the more decisive and intelligible nature of their indications, coupled with the artifices which they practiced for the mere purpose of acquiring popularity, gained them a decided advantage over their learned and dignified rivals, (the Galenists or Botanics) who were both unable and unwilling to contend with them in the race of empiricism."*

In the fore part, and about the middle of the sixteenth century, renewed attention was given to the study of human anatomy. A sect arose called the Anatomists, who contended for supremacy with the Chemists and Galenists. The last, together with those, who, paying less regard to mere authority, observed carefully the phenomena of disease, and studied the effects of various remedies, were entitled Physicians. To this sect belonged Cornarus and Mercurialis in Italy, Hollerius, Fernel and Duret in France, Sennert, Plater and Foes in Germany, and Linacre in England. A brief historical sketch of most of the above writers may be found in Hooper's Medical Dictionary, to which we would refer the reader, our limits forbidding even a reference to their history or writings. The Physicians, "as a class, were superior in their attainments, ability, and in their activity for the improvement of medicine, to the Chemists, or even Anatomists. "Many of them were professors in universities, or teachers of medicine, and engaged in an extensive practice." To the Chemists of that period belong no names prominent in the history of Medicine, and the improvements they made, or the benefits they conferred were of a trifling character.

For two centuries previous to the period of which we speak,

*Bostock.

but little attention had been given to human Anatomy. In 1315, Mondini had publicly dissected two females at Bologna, but no improvements of value were made in Anatomy, until Vesalius, about the middle of the sixteenth century, gave a new impetus to the study of this important branch of Medical Science. Vesalius was born at Brussels in 1514. He studied in different universities, served as surgeon in the army two years, settled at Padua, and taught Anatomy with great success in several schools in Italy. In 1544 he was appointed royal physician to Charles V. About twenty years afterwards a singular incident occurred with him, which caused his ruin. He was summoned to examine the body of a Spanish gentleman, but commencing the operation without a careful observation, the heart was seen to palpitate. He was arraigned before the Inquisition, but Philip II saved his life by his interposition, and he was only required to make a pilgrimage to the Holy Land. Whilst there he was invited to accept the chair of Anatomy at Padua, but on his return the ship was wrecked at Zante, where he soon after died. But his labors were not lost to medicine. He had boldly dared to question the authority of Galen, and to point out errors in his writings. A long and bitter contest between the Galenists and Anatomists followed, some contending for his infallibility, others for the corrections and improvements of Vesalius. Amongst the defenders of Galen were some able anatomists, such men as Eustachius and Fallopius. It was at last conceded, however, that there were errors in the anatomy of the ancients, and that Vesalius had made many corrections.—Although the Anatomists rendered so much service in their particular branch, yet it is not supposed they materially improved the practice of medicine.

The progressive improvements that had been going on during the sixteenth century, were continued, but in an increased ratio, through the seventeenth. The Hippocratean school was gradually gaining ascendency over the Galenists. The system of careful and correct observation became more universal, and the principles deduced were more certain and reliable. Anatomy, too, was making rapid advancement. This science being one more strictly of observation, where facts could be easily determined, and errors exposed, it was cultivated with great enthusiasm. Every part of the body, every structure and organ, was carefully investigated. The most eminent men of the age devoted themselves to a careful and thorough examination of the forms and texture of the bones, the muscles, the vessels, and all the visera of the body.

In 1578, William Harvey, the discoverer of the circulation, was born at Falkstone, Kent, England. After studying four years at Cambridge, at the age of nineteen he visited France, Germany and Italy, and settled at Padua. He returned to London, and in 1603, became a Fellow of the Royal College of Physicians, and soon after was appointed physician to St. Bartholomew's Hospital. In 1615 he was appointed Lecturer on Anatomy in the College of Physicians, soon after which he published his discovery of the circulation of the blood. He had been convinced of this fact years before, but he delayed its announcement until by repeated experiments and observations he should be able to demonstrate and confirm the truth of his discovery. The announcement brought upon him the bitterest opposition. It was condemned as a ruinous innovation by some, whilst others contended that it had been known long before, and so great was the prejudice it excited, that his practice materially diminished. Such is the reception most of the important improvements and discoveries in medicine have met with from the faculty themselves, and such has ever been the dogged pertinacity with which the old school have held on to the errors of their system, and such has ever been their reluctance in adopting improvements, that so far as the theory and practice of medicine are concerned, they are in almost every important particular, in every fundamental principle, or rather fundamental error, nearly what they were three thousand years ago. Errors that existed before the dark ages, and that have come to us darkened by the shadows of that long night of barbarism and superstition, are now the ground work of half the practice of those claiming to be "regular," and to have Hippocrates for their "Father," and Æsculapius for their god. We hope to show conclusively before the conclusion of this essay, that notwithstanding all the discoveries in science, notwithstanding the extensive applications of the deductions of science to every other department of art and of human industry, the Art and Science of Medicine, so far as the old school is concerned, are very nearly the same now they were in the days of Hippocrates and Galen.

As we have said, Harvey published his discovery of the circulation of the blood about the year 1615. Bartholine, who was born at Copennagen in 1616, was the first to describe accurately the system of lymphatics and absorbents, though some of these, as well as the lacteals and thoracic duct had been mentioned by other anatomists. The names of Asselli and Rudbeck are also mentioned in connection with these organs. Malpighi, who was born near

Bologna in 1628, first explained the structure and office of the lungs, and their relations to the heart.

About the middle of the seventeenth century, Boyle rendered very essential service to the science of Chemistry. Indeed, we may regard it as commencing its rank as a science with him. Although it had been gradually emerging from the mists of credulity and mystery by which it had ever been surrounded, yet Boyle is the first who placed it upon a true philosophical basis, regarding it not as dependent upon occult causes and mysterious agencies, but as investigating the changes which bodies experience in their various forms and properties, when acting upon each other; changes ascertained by direct *experiment*, by observing the effects which bodies mutually produce upon each other when brought within the sphere of their influence.

Notwithstanding the science of Chemistry during the seventeenth century had been purified from so much error and mystery, yet during this same period, and particularly in England, there were individuals combining with it more fanaticism and credulity than any of the followers of Paracelsus. Fludd, a practitioner in London, early in the seventeenth century, although a man of much erudition, was an implicit believer in astrology, and in the cabalistic notions of the Jewish Doctors. Kenelme Digby, though a man of rank and accomplished education, during his travels on the continent imbibed all the mystical notions of the earlier chemists, was initiated into their secrets, and on his return published an account of the virtues of his *sympathetic powder*. Valentine Greatrix treated all diseases by an imposition of hands, and he ventured to oppose his power to the royal touch of Charles II.—These instances, as well as many others that might be enumerated, show how difficult it is to eradicate gross and palpable errors when once deeply rooted, though they may have been fully exposed by the light of intelligence.

Chemistry, meanwhile, after having been elevated to the rank of a distinct science by Boyle and others, was making progress.—About this time a new sect of chemical physicians arose, whose leading doctrine was that all operations of the living organism are controlled by chemical laws and forces, and that the principal of these is *Fermentation*. Health and disease were supposed to depend upon certain fermentations taking place in the blood and other fluids, whilst these fluids themselves were supposed to be the result of specific fermentations, by which they were elaborated from the elements of the body. Certain humors, also, were sup-

posed to be naturally acid, and others naturally alkaline, and as one or the other of these predominated, specific diseases were the result, and they were to be removed by the administration of remedies opposite to the particular disease. For instance, fever was supposed to depend upon an acid condition of the humors, and must therefore be cured by the alkalies. Certain other diseases were supposed to originate in an alkaline state of the humors, and must be treated with acids.

The principal author of this peculiar chemical theory was Sylvius, born at Hanau, Flanders, in 1614. He graduated at Basle or Basel, Switzerland, practised at Amsterdam, and in 1658 was appointed first professor of medicine in the University of Leyden, South Holland. Here, by his genius and eloquence, he attracted a large number of hearers from every part of Europe. He was one of the earliest supporters of Harvey's theory of the circulation of the blood, and was the means of its being adopted in the University. He died in 1672.

The first who introduced the chemical doctrines into England' and advocated their claims, was Thomas Willis, born in Wiltshire in 1621. He entered Oxford to prepare for the ministry, but changed to physic. In 1659 he published his celebrated treatise on fermentation and fever. His theory is, that every organ and humor of the body has its peculiar and appropriate fermentation, and that the morbid state of these ferments is the cause of all diseases. The indications of cure were to regulate these ferments, and reduce them to a normal standard. For a time these doctrines were almost universally adopted in France, Germany and England, but like most other theories in medicine, they gave way to new ones, but to be reproduced in another form. The beautiful chemical doctrines of Sylvius and his followers—beautiful and complete so far as the state of chemical science could then develope them—were for centuries obscured by the *irritant* and *counter-irritant* theories of his successors, but revived again in the crude enunciations of Samuel Thompson, and later still elaborated and extended by the genius of Leibig, and by the labors and investigations of Lehman, Carpenter, Paget, and others. That the principal forces which govern all the motions and processes of the living organism, are purely chemical, no one at the present day can for a moment doubt. One has but to consult the records of Physiological and Pathological science, as developed within the last half century, to be convinced of this. But the chemical theory of

life, disease, and of medication, will be more fully discussed and elaborated in a subsequent chapter.

Following Sylvius, of Flanders, and Willis of England, who flourished during the second quarter of the seventeenth century, we have the celebrated Thomas Sydenham, usually styled the English Hippocrates, a distinguished advocate of the chemical doctrines, whose labors extended through the last half of the seventeenth century.

Were we asked to enumerate in the fewest words the fundamental principles of the system of Medical Reform, as now taught in its best schools, and practised by its ablest practitioners, we could scarcely adopt a better or more concise mode of expression than the following, found in the Therapeutics of Sydenham: "The great Hippocrates, after having established as a solid basis of his Art, this incontestible axiom, namely: NATURE CURES DISEASES, has exposed clearly the symptoms of each of them, without having recourse to any hypothesis or system, as may be seen in his works. He has also given rules for treatment, *founded on the course which Nature takes in the production and cure of diseases.* This is very nearly in what consists the theory of the "Father of Medicine," and all he demands of a physician is *to succor Nature when she is overcome, to correct her when she errs, and to bring her back into the circle which she has just abandoned.*"

This is genuine Hippocratic doctrine, as well as true philosophy, but how can the *Allos Pathos* system of medication conform to this doctrine, or be guided by this philosophy, whilst it employs those means which must necessarily contravene the laws and operations of Nature? What harmony have the reducing *lancet*, the excruciating *blister*, the torturing *seton*, the burning *moxa*, and the whole catalogue of deadly irritant and narcotic *poisons* with the philosophy of Hippocrates and Sydenham, or with the laws and forces of Nature?

Sydenham, too, first announced the doctrine that "it is necessary, in the description of disease, to expose separately the proper and *essential*, or the accidental and *foreign* symptoms." This distinction, according to the modern idea, may be better expressed by the terms *Physiological* and *Pathological*, or healthy and morbid, designations, which will be employed in the following work in the description of diseases. This distinction we regard as of primary importance. In the progress and development of every disease, there are certain manifestations which evidently are reparative in their character, whilst there are others as evidently

morbid or pathogenetic. For instance, in fever, the increased action of the heat and larger arteries, the heat, and other symptoms, are curative, whilst the accumulated morbific matter, the diminished secretions, and similar symptoms, are as manifestly morbid, or disease producing. The former are but efforts of Nature to remove the latter, and that in the same manner in which she carries on the healthy processes of the organism. The latter being removed, the former *will subside of themselves.* It is the physician's business to promote the healthy or physiological symptoms, and to remove those which are morbid or pathological. This is a deduction from sound philosophy, as well as a dictate of common sense.

Sydenham was the contemporary and friend of Locke. Adopting Locke's philosophical methods, he endeavored to remove medicine from the region of theory and speculation, and establish it upon a basis of philosophical induction. But he failed in the attempt. Whilst the philosophy of Bacon and of Locke was gradually working such revolutions in every other department of human knowledge, producing a Copernicus, a Galileo, a Kepler and a Newton, the science of medicine was trammelled with theories, speculations and absurdities.

We will for a moment revert to the latter half of the sixteenth century, to notice the first attempts at Medical Topography. Certain climates, certain localities and geographical situations, are subject to certain diseases peculiar to them. Prosper Alpine was the first to investigate this interesting department of medical science. In a natural history of Egypt, he treated of the diseases peculiar to that country, and their causes as dependent upon peculiarities of climate, soil, and various geographical and other physical conditions. Since Alpine, many distinguished *savans* have directed their attention to the investigation of the topographical situation of various diseases, as well as to the modifying influences of climate, and other conditions peculiar to different geographical regions.

Whilst the Iatro-chemical school, on the one hand, were endeavoring to establish medicine upon the results of the investigations and discoveries in Chemistry, another sect, turning to experimental Physics, Mechanics and Mathematics, strove with equal zeal and confidence to apply these departments of science to the elucidation of vital phenomena, and to the cure of disease.—They aimed at the establishment of a system by which they could calculate with mathematical certainty every vicissitude of

health, the progress of disease, and the means of cure. They were denominated Iatro-mechanical, or Iatro-mathematical Physicians.

Alphonso Borelli, Professor of Mathematics in the celebrated University of Pisa, founded in 1657, for the propagation of the philosophy and the methods of Galileo himself, is the founder of the Iatro-mathematical school of medicine. In the very hall where the doctrines of Galileo were promulgated, Borelli read his first essay on animal mechanics and mathematics.

The Iatro-mathematical school indulged the vain hope that by algebraic formulæ they would be able to represent all the combinations and aberrations of the vital forces, and to calculate the means of cure. Some of the most eminent minds of Europe were seduced into the vain yet plausible illusion. The distinguished scholar, Laurent Bellini, George Baglivi, entitled the Roman Hippocrates, and Joseph Danzellini of Italy; Sauvages, the celebrated nosologist, and J. Senac, named *the great*, of France; Boerhaave of Germany, John Bernoilli of Holland, one of the inventors of the differential calculus; and Pitcairn, of Great Britain, who went so far as to propose the vast problem, "*A disease being given, to find the remedy;*" and a list of other names equally distinguished in the annals of science, were converts to, and propagators of the Iatro-mathematical doctrines of medicine. Regarding the body simply as a machine composed of levers, pullies and tubes, by calculating the power of the former, and the diameter of the latter, and the friction of fluids, the size of pores and particles, and estimating the forces of revulsion, lentor and resolution, they professed to discover,

"Baith the disease, and what would mend it."

The chemical theory of medicine almost necessarily involved the doctrine of *Humoralism*, whilst the mechanical and mathematical theory was mostly limited to *Solidism*. As the latter theory advanced, the former gradually declined. The mathematical and mechanical philosophy, however, was more employed by its advocates for the determination of the conditions of the system in disease, than in devising remedies for its cure.

CHAPTER V.

New Theory—Van Helmont—The Archeus—Van Helmont's Doctrines—His Physiology—Pathology—Therapeutics—STAHL—The Anima—Stahl's Doctrines—His Physiology—Pathology—Therapeutics—True Nature of Disease—Animism—Barthez—Vital Principle—Doctrines of Barthez—Two Axioms of Practice—Therapeutics of Barthez—Hoffman—Newman's System—Theory of Life—Of Disease—Contraction and Relaxation—Hoffman's Therapeutics—A New Era in Medicine.

During the middle portions of the seventeenth century, whilst the rival sects of the Chemical and Mathematical Schools were contending with each other, a new theory was gradually making its appearance, which was ultimately to supersede its predecessors. John Baptist Van Helmont, a native of Holland, a man of wealth, an enthusiast, and a profound scholar, imbued with a spirit of philanthropy, and desiring to devote his life to the relief of human misery, applied himself to the study of Medicine. Although he commenced his course of medical study as a disciple of the Chemical School, a course to which he consecrated thirty consecutive years, with almost fanatical ardor and enthusiasm, reading and commenting on over six hundred Latin and Arab authors, and visiting all the celebrated schools of medicine throughout Europe, yet he was not satisfied with the theories that had preceded him. He conceived, and with him, as a medical philosopher, originated the conception, that the changes occurring in the system, both in health and disease, whether spontaneous, or the result of medicine, are different from those we observe in inanimate matter, and are under the influence of a specific agent, residing in the system, which he denominated the *Archeus*. This differed from the *Phusis* of Hippocrates, which, with him, implied only those changes themselves. The *Archeus* of Van Helmont is but the first phase of a chimera, which, after passing through various metamorphoses assumes the imaginary form of the "Vital Principle," a creation of speculative philosophy, for the purpose of explaining all theories and all phenomena, otherwise inexplicable.

Van Helmont's doctrines, briefly expressed, were as follows:—

He admits two material principles for all things, *water*, which furnishes matter, and a *ferment* or *seminal breath* which gives it form. The earth he supposed to proceed from water, by a secondary formation. The *Archeus*, or conscious soul, is a spiritual gas, which gives impulse to the fecundated seed by means of a ferment. It regulates, like a skillful architect, all the movements of the natural body, and it remains in them until their dissolution.

With him, each particular organ has a subordinate controlling power, an innate spirit, each, however, subject to the *Archeus*.—To the stomach and spleen he accords a sort of omnipotence over the rest of the body, which he designates by the peculiar title of *duumvirate*. The *Archeus* resides in these two viscera, but particularly in the pylorus. He has six digestions: The first, an acid ferment in the stomach; the second, an alkaline ferment by the bile in the duodenum; the third, in the mesenteric veins, where the chyle is transformed into blood, or cruor; the fourth, in the heart, where heat, agitation and a particular ferment convert the venous into arterial blood; the fifth, in the brain, where the vital spirit is extracted from the arterial blood; the sixth is the work of assimilation, each organ and part, by its innate spirit, appropriating such nutriment as is natural to it. With the number seven, nature rests, or keeps a sabbath.

His Pathology consists in the *Archeus* being offended by any injurious or disagreeable agent, when it becomes furious, or is seized with fear, producing disordered movements, and the image which this disturbance depicts in the Archeus, becomes the seminal idea of the disease. There are as many species of disease as there are morbid seminal ideas, and the primitive seat of each affection is in the tunic of the stomach, the habitual residence of the *Archeus*. Morbific causes were of two sorts, external, as miasms, poisons, impure food, etc., and internal, excrementitial matter not evacuated at the proper time. Fever is the result of extraordinary efforts of the *Archeus* to rid itself of the morbid idea which troubles it; from this struggle proceed those intervals of excitement which succeed each other. The chill indicates the state of terror, or exhaustion of the *Archeus*; the heat announces the struggle which it makes.

His Therapeutics consisted in the principle that the first condition for the favorable operation of a medicine was, that it must *comport with*, and be *agreeable to the Archeus*, and that it must be administered in proper doses and at proper times.*

* Renouard.

The profound investigations, the far reaching vision, the fanciful speculations, and the inexplicable mysticisms of Van Helmont form a sort of transition period from the Platonian and Aristotilian schools of philosophizing, to those of Bacon and Locke. In the prominence given to the stomach as the great centre of sympathy, in his views of fever, and the nature and action of remedies, we see the foreshadowings of a philosophy not unworthy the truest revelations of modern science. "Van Helmont proscribed bloodletting as injurious in all cases."*

Although he was the first to announce a specific principle as controlling the changes in the living organism, different from that in inanimate matter, yet his entire doctrines were involved in so much mysticism, that they made but little impression upon his contemporaries. He had few, or no disciples. Nearly half a century after Van Helmont's death, the Chemical and Mathematical schools still remaining and contending with each other, Bœrhaave and Baglivi, earnestly maintaining the latter, the celebrated George Ernest Stalh was born at Anspach in Bavaria, in 1660. Frederick Hoffman, a man not less distinguished in the history of medicine, made his appearance about the same time. They were fellow-students at the University of Jena, and afterwards colleague professors at the celebrated school at Halle, where, for half a century, they stood as brilliant lights in the scientific world.

In 1694, Sthal was appointed to a professorship in the University of Halle. His fame belongs to the annals of Chemistry, as well as to those of Medicine, though in the latter relation alone have we to refer to him in the present essay.

Though for ourself, we are disposed to reject the doctrine of a superintending and controlling "Vital Principle," distinct from physical forces, and to regard vitality as the *resultant* of physical processes, processes modified by organization, yet the *Archeus* of Van Helmont, the *Anima* of Sthal, and the *Vital Principle* of Barthez play so important a part in all the prevailing systems of Physiology and Pathology, that we cannot deny them a brief consideration.

Stahl, adopting the doctrine of Descartes, that all matter being in itself inert, is pervaded by an animating spirit, an active principle, whence its active properties, referred all vital actions to a peculiar controlling power or influence which he denominated the *Anima*, and which resembles the *Archeus* of Van Helmont. The

* Renonard's History of Medicine—Comegy's— p. 509.

Iatro-chemists attribute the Phenomena of life to fermentation, or pure chemical action, the Iatro-mathematicians, and mechanics to muscular contraction and other purely mechanical processes, Stahl abandoned them exclusively to the control of the *Anima*. Life, with Stahl, consists alone in the preservation of the humors of the body in a state of integrity or perfect mixture, by the controlling influence of the *Anima*, or as he sometimes denominates it, the immaterial or rational soul. He regards the body as having been created only as an instrument for the soul. "It must be remembered," he says, "the human mind could do nothing in this world without the intermediation of the body, for which it is intended. It cannot put itself in relation with sensible things, nor have, consequently, any idea but by the aid of natural organs. It is also very evident that the body is subjected to the soul, since it employs it, both in acquiring knowledge, and in accomplishing its purposes. The act, he continues, "by means of which life is sustained, and the soul fulfils its functions, is absolutely repugnant to matter, and agrees well with the nature of the mind. That act, as observation shows, is motion: by it the mixture of the humors is preserved in integrity; the soul acts on the body and in the body, composes, reasons, and moves from one object to another; in a word, it is in perpetual motion. Now all matter is an immaterial act, which can only have for a principle an inanimate substance itself." His doctrines were denominated Animism.

These doctrines, though subtile, and somewhat obscure, and mixed in his voluminous writings with mysticisms and speculations, did much towards forming the medical philosophy of his age, and of subsequent times. They directed attention to the vital principles of the organism. They stood in opposition to the purely chemical and mechanical philosophy. They established the truth that the forces and actions of the system are different, whether referred to chemical or mechanical laws, from those we observe in inanimate matter. His views of the moral, upon the physical man, were in many respects equal to those entertained at the present day, He explains the birth marks on children, (*nœvi materni*) by the sympathy which exists between the soul or *Anima* of the mother, and that of the fetus; also many interesting vital phenomena depending upon the habits and passions of the individual.

His pathology consisted in an undue or imperfect mixture of the humors, or their departure from a state of integrity; his Therapeutics, in calming or exciting the movements of the animal economy when they have departed from the normal mode, or in

restraining them, or in acting upon them conformably to the natural indications. "The physician should follow the movements and tendencies of nature, rather than believe himself authorized to dare attempt something without having due regard to her tendencies."

Though these views may partake somewhat of the *expectant* philosophy of treatment, yet we cannot, with Renouard and others, see in them "the absolute negation of the active concurrence of the physician in the treatment of diseases." We think we see the true Hippocratic and Sydenhamic doctrine that in disease, Nature is struggling against some obstruction, and that when of herself insufficient to remove it, the physician should aid her in accomplishing it in the same way she would do of herself if able, that is, to eliminate it through her proper emunctories, and that too, by such means and appliances as will aid Nature in her own spontaneous efforts. Surely not to "attempt something, without having due regard to her tendencies." We cannot refrain from asking again, what regard have blood-letting, blistering and poisoning "to the tendencies of Nature?"

The doctrine of pure Animism spread rapidly in Germany, though in France, and other portions of Europe, the doctrines of the *Vital Principle*, founded by Barthez, gained more favor. He considers the *Vital Principle* something distinct from the body and the soul, or mind, and yet endowed with sensation and perception, thus differing on the one hand from the chemical and mechanical forces of Sylvius and Borelli, and on the other hand from the *Anima* of Stahl, but resembling the Archeus of Van Helmont. The writings of Barthez though able and voluminous, abound in contradictions and mysticisms. He says, "we can only give negative assertions, doubts and conjectures, on the nature of the Vital Principle in man." Then follows a tissue of absurdities in relation to this same Vital Principle, all resolving themselves into nothing, yet he devotes two volumes to a discussion of the faculties, acts, and lesions of the Vital Principle. He concludes that "when a man dies, his body is resolved into its elements; his Vital Principle reunites with that of the universe; and his soul returns to God, who gave it, and who secures it an immortal existence."

Though encumbered with absurdities and contradictions, the writings of Barthez contain much that is valuable in Physiology, Pathology and Therapeutics. Many phenomena of the animal economy, both in health and disease, especially their very strange and surprising Physiological and Pathological sympathies mani,

fested in numerous individuals, were more satisfactorily explained by him, than by any other, even to this day.

In Therapeutics, he is considered superior to all theorists of ancient or modern times.* It is a somewhat singular fact that, perhaps with the exception of Stahl, few of the celebrated speculators, or theorists in medicine, from Hippocrates to Barthez, permitted their respective theories and dogmas, to interfere, to any considerable extent, with their practice. Dogmatics and Empirics, Methodists and Rationalists, Pneumatics and Eclectics, Chemists and Mathematicians, Humoralists and Solidists, Animists and Vitalists, mostly adopted the same general principles and methods in their treatment of disease.

Up to the time of Barthez, but two principal axioms were known in Medical practice. The first was, "that diseases are cured by their contraries"—*contraria contrariis curantur.*" the second, "that the physician is the minister of Nature, and should study only to follow her indications and tendencies," the latter involving the principle of the *Vis Medicatrix Naturæ.* These axioms were adopted and made the basis of practice, indiscriminately by all sects and schools for over two thousand years. In the first originated the dangerous and cruel doctrines of the *Allos Pathos* school of modern times, and in the other the system of sanative treatment, in which all poisonous agents and destructive means are *in toto* rejected.

Those who desire to see a triumphant and philosophical refutation of the doctrine of *contraries*, and an exposure of its absurdity, may consult Renouard, Littre and Becker on that subject.

Barthez included his therapeutical methods in three classes, viz.: The natural, the analytical, and the empirical.

The *natural* method consists in aiding Nature, regulating the course of the disease, and rendering the operations of nature surer by retarding, hastening, or changing the processes which she employs.

The *analytical* method proceeds upon the principle of tracing out all the symptoms dependent upon the primary affection or lesion and treating each separately as though it were itself the primary disease.

The *empirical* method employs those means of cure, the efficacy of which has been established by experience, without first seeking to ascertain *a priori* upon what pathological or therapeutical principle the means may be employed.

* Renouard.

Although Barthez entertained but crude and imperfect notions of Empiricism, yet we shall hereafter see that it constitutes the only basis of a rational and safe system of Therapeutics.

We come next to consider the views of Hoffman, the contemporary and colleague of Stahl. He was a prolix and voluminous writer, the titles alone of his works filling no less than thirty-eight quarto pages. The most important ideas advanced by Hoffman are those connected with his investigations of the nervous system, and its functions both in health and disease. Prior to his researches, which occupied the latter portion of the seventeenth century, and the beginning of the eighteenth, little or nothing was positively known respecting the offices of the brain and nervous system. Rejecting the doctrine of ferments and acridities of the chemists; and the contractile force of organs, the capacities of muscular orifices, and the form of liquid molecules of mathematicians; also that of the animists, respecting the essence of the soul, or the vital principle, he referred vital phenomena and diseases to a certain contractility and relaxation of the fibres. "Life," he says, "is the movement of circulation of the blood, and other humors, produced by the systole, and diastole of the heart and arteries, or to speak more properly, of all the vessels, and all the fibres, maintained by the contact of the blood and of the spirits, and which, by means of the secretions and excretions, preserves the body from all corruption, and sustains the functions of every organ. The circulation, is indeed, a vital movement, that preserves the blood from putrefaction, to which it is extremely subject. The heat, elasticity, firmness and tension depend on it."

"To guarantee, then, the human body from disease, pain and melancholy, requires nothing more than to give to the blood the necessary aid and succor, and especially to prescribe a regimen appropriate to maintain the circulation and the excretions in a normal state. To treat disease is nothing else than to cause to return to their natural condition the blood and liquids which have become deranged."

This is all good doctrine. But cleanse the system, "*cause to return to their natural condition the blood and liquids which have become deranged*," and you cure almost any disease. But how shall this be accomplished? By blood-letting, blistering, and poisoning? No! Simply by causing a removal of the morbid matter in the "blood and liquids" by the same means, and through the same channels, or emunctories, by which the healthy system itself is constantly removing the worn out material, the *debris*, from all its

organs, its tissues and structures—that is, through the pores of the skin, the bowels, the kidneys, etc. Can the blood and other fluids of the system be purified by blood-letting? Suppose there are twenty-four pounds of blood in the system. Suppose four ounces of this is morbid matter, producing disturbance in the system. By draining two pounds of blood, we remove but one-twelfth of the morbid material, and take one-twelfth of the life of the patient; for physiology, as well as holy writ, teaches us that "in the blood is the life."—Would it not be better to remove the *whole* of this morbid matter by a *natural* process through nature's own emunctories?

Hoffman, considering all the vital movements to depend upon the systole and diastole, or contraction and dilitation of the heart and all the solid fibres, referred disease to the same cause. All disease with him is too much contraction, or too little constriction or atony. The former in excess produces spasms, and must be treated with relaxants or anti-spasmodics, the latter by tonics.—These are leading features in the doctrines of the Solidists. Hoffman enjoyed, whilst living, the reputation of being the first physician of Europe. This distinction was awarded him by Boerhaave and others of his contemporaries.

During a period of two or three centuries previous to the beginning of the eighteenth, the ablest minds of that time had endeavored to apply to medicine the same rules and principles of investigation by which other departments of science had been advanced. Sylvius, Willis, Sydenham and others, employed the laws of chemistry to explain vital phenomena. Sanctorius, Borelli, Baglivi, Boerhaave, Sauvages and a long list of distinguished *Savans* strove with equal zeal to apply the principles of Mechanics and Mathematics to the same purpose. But the beginning of the eighteenth century was the inauguration of other methods of investigation. Although a vast amount of useful knowledge had been acquired in the various departments of Medical Science, and inductive methods of investigation had to some extent been applied to medicine, yet speculation had taken precedence of observation and experiment, what may be called *learning* had been superior to *true knowledge.*

CHAPTER VI.

New Era in Science—Bostock's Observations—HALLER—Boerhaave—State of Science at Haller's Appearance—Irritability—Haller's Discoveries—Haller's Works—Haller's Contemporaries—Specific Irritability—Fabre—BICHAT—His Views—John Hunter—Investigations of the Blood—Sauvages—His Nosology—CULLEN—Medical Practice—Renouard's Propositions—Cullen's Inconsistencies—His Theories and Practice—BROWN: His Doctrines—Basori.

As already intimated, with the eighteenth century commenced a new era in Medical Science. Observation and experiment were taking the place of hypothesis and speculation. Bostock says of this period, "Scholastic disquisitions were completely disregarded, abstract theory was rapidly falling into disrepute, and hypotheses were no longer considered as deserving attention, unless they professed to be derived from the generalization of facts. The necessary result of this state of things has been to detach the mind from the arbitrary influence of theory, to diminish the authority of great names, and to induce inquirers after truth to rest more upon their own exertions than upon the authority of others. We have, indeed, still to lament the errors and perversions of the human mind, to witness the attempts of ignorance and arrogance to usurp the place which is due to modest desert and patient research; but such attempts, for the most part, have obtained only temporary success, and after an ephemeral celebrity, have been consigned to their merited contempt. In the meantime, notwithstanding these occasional interruptions, the progress of knowledge has been rapidly and steadily advancing. Experiments, well continued and patiently conducted, have been performed in every department of Physiological and Medical science; observations have been made with more minuteness, and recorded with more accuracy."

The leading spirit in the revolution to which allusion has been made, was Albert Haller, born at Berne, Switzerland, in 1709.—Before considering his views, however, we make a brief allusion to the state of Medical Science at the time of his entering upon the stage. His preceptor, Herman Boerhaave, who entered the ranks of the medical profession in 1693, had endeavored to select from

all the prominent theories and doctrines of his predecessors, from Hippocrates to Stahl and Hoffman, and out of those doctrines and theories construct a system more correct, more comprehensive and more rational than any that had preceded him. To this task he brought a powerful intellect, great scholarship, an acuteness of observation, and a philosophical talent; but a system founded upon the hypotheses of the past must at that period have been a defective one. It constituted, however, somewhat of a summation, a *resume* of what had gone before, and the labors and writings of Boerhaave, and of his pupil Van Swieten, may be regarded as forming a transition from the period of speculation and hypothesis to that of observation and experiment. The works of Boerhaave abound in the most elaborate and finely spun theories which modern science has failed to confirm, and in statements respecting minutiæ, which the microscope itself has not revealed. He aims at an explanation of disease in its simplest elements, as exhibited in the elementary fibres. "The primitive fibre," he says, "is composed of small simple terrestrial particles, separated from the fluid contained in the vessels. They are reciprocally applied to each other by the forces of life, in such a way that the perturbating causes which exist in the living body are scarcely able to change or alter their nature. On this account each molecule in particular is not subject to any disease that physicians have seen or treated, but the smallest fibre which results from the reunion of these molecules is subject to the following diseases: excess of softening or relaxation, excess of tension or elasticity."

With the doctrines of the *phusis*, of humors, ferments, Solidism, the Archeus, the Anima, Vital Principle, and a thousand able and bold theories and hypotheses, mixed with as many mysticisms and fallacious speculations before him, Haller commenced his investigations in 1726. As early as the middle of the seventeenth century, Francis Glisson, of Oxford University, England, discovered in the living tissues a peculiar force which he denominated *irritability*, and which he considered as the cause of vital phenomena. He proposed to divide it into natural, vital and animal. These views made little or no impression on the medical world. They were forgotten for more than sixty years, when a Dutch Anatomist, John de Goester, revived them. He did not, however, well distinguish between irritability and elasticity.

Haller, by carefully abstaining from all new theory, by placing no reliance upon the statements or speculations of his predecessors, only so far as they were founded upon experiment and observation, by demonstrating experimentally each step in his in

vestigations, elevated Physiology from a tissue of hypotheses to the rank or a fixed science. The conjectures of Glisson and Goester respecting *irritability* were demonstrated, and its seat and true nature ascertained. To this he added the discovery of another principle, that of *sensibility;* the former peculiar to the muscular system, the latter to the nervous. In 1747 he published the results of his vast labors, under the unassuming title of *Primæ Linæ Physiologæ.* In this work, for the first time in the history of physiological science, are laid down the true characters which distinguish living tissues from dead substances. He distinguishes accurately between mere contractility or elasticity, and *vital contractility.* The former exists in all the structures, the tendons and membranes, as well as in the muscles, and continues for a period after death; but the latter, that is, true vital contractility, is found alone in the muscles, and becomes immediately extinct with life. He demonstrated that the latter depends upon nervous influence, for the nerves of a muscle being ligated, it lost its power of contractility, and on removing the ligature, the power would return to the muscle, whilst irritation applied to the nerve of a dead muscle caused it to be violently convulsed. Thus subjecting all his views to the rigid test of careful observation, and well conducted experiments, he proceeded, step by step, to lay the foundation in the true principles of scientific induction, of a system of Physiology which modern science and modern research have only improved and extended. He may be denominated the father of Physiology. Continuing until the last years of a long life to improve and enlarge his earlier views, he published in 1757 the first volume of his great work on Physiology, *Elementa Physiologiæ Corporis Humani*, the whole of which was not completed un, til 1766, two years before his death. "It was," says Renouard- "if I may be permitted the poetical expression, the song of the swan, the crowning labor of an existence entirely consecrated to the profit of science and humanity. Haller proceeded in the entire work with his usual circumspection, advancing nothing but what was supported on well established facts, and giving the least possible influence to hypothesis. Rich in a multitude of observations, which were his own, and in a vast erudition, he elevated to the science of life an imperishable monument. From this time Physiology had an existence, independent of physics or chemistry. It was demonstrated that life has its laws and its special forces, which must be studied after a particular method."

The beautiful truths, and the startling demonstrations of Haller,

gave a new impulse to scientific research throughout the learned world. His methods of investigation, and the spirit in which he proceeded in his labors, too, created no less interest than his brilliant discoveries themselves. A new era in the history of science was now fully established. The ablest men of his time diligently repeated his experiments, and added others to confirm or refute his propositions. His views were ably supported and extended by the labors of Zimmerman, Caldani, Fontana, Tessot, Zinn, and Verschuir. They were violently opposed by Whytt and Porterfield, of Edinburgh.

Haller even endeavored to ascertain to what element or constituent of the muscular fibre irritability pertained. He supposed it to depend upon gelatine combined with an earthy principle.—With him originated the idea of specific irritability. Observing that Antimony, for instance, even in small doses, excites the stomach to vomiting, whilst it has no influence on the heart, he inferred that certain organs are susceptible to the action of certain agents, whilst others are exempt—thus specific irritability.

Theophilus Borden, a French physician, born in 1772, applied the doctrine of specific irritability or sensibility to the secretions. Rejecting all the chemical and mechanical explanations which, up to his time, had been entertained respecting the functions of the glands, he attributes the various kinds of secretion to the proper action of the different glands, each one of which he supposes to possess its own specific tone or sensibility. He makes a statement which Renouard supposes may have suggested to Gall the doctrine of a plurality of intellectual organs in the brain. He says that all functions commence at the brain, and he conjectures that it is divided into as many compartments or organs, as there are functions in the organism.

Peter Anthony Fabre, of Paris, was the first to apply Haller's doctrine of irritability to Pathology. He refuted also the mechanical and chemical theories that had preceded him, particularly as applied to fever, and attributed it to an exaltation of irritability in the capellaries.

The followers and disciples of Haller endeavored to demonstrate the existence of irritability in all the tissues. By repeated experiments and a rigid analysis, the proposition was at length established. The theory of the vital properties was systematized and applied to all the functions. At the head of this list of investigators stands the name of Bichat. He traced clearly the characters that distinguish vital from physical forces. He showed that

the former vary constantly in their intensity, energy and development, passing rapidly from extreme prostration to the highest degree of exaltation, assuming numberless modifications under various causes, as sleep, wakefulness, exercise, rest, digestion, the passions, etc. The latter are ever the same, and are the source of uniform phenomena. "Compare," he says, "the vital faculty of feeling with the physical faculty of attraction; you perceive that the attraction is always in proportion to the mass in which it is obscured, while sensibility changes constantly its intensity in the same organic part, and in the same mass of matter."

Bichat supposed two classes of vital faculties, those of feeling or sensibility, and those of contractility, each admitting of several degrees. Sensibility is divided into organic and animal. Organic sensibiliity consists in the faculty of receiving an impression, and is common to plants and animals. Animal sensibility is the faculty of receiving an impression on any part, and of transmitting it to a common centre. Animals with a nervous system, alone are endowed with this faculty. He also divides contractility into organic and animal; a distinction which nearly corresponds with involuntary and voluntary motions. Bichat also suggests the idea of specific remedies, founded upon the susceptibility of the vital properties to various degrees of *modification*, as well as exaltation and diminution. He was the first to suggest that the fluids of the system possess a species of vitality as well as the solids. It remained for the distinguished John Hunter to demonstrate this important fact. He was born at Kilbride, in Scotland, in 1728. His early education was neglected. Apprenticed to a carpenter and cabinet maker, he pursued the business until the failure of his principal. Learning his brother William's success as a teacher of Anatomy, in London, he applied to become his assistant. He joined him in 1748. He made great progress in his studies, and by his zeal and untiring application soon rose to distinction in his profession. He has left many valuable works, but we refer here particularly to his investigations and experiments on the nature and properties of the blood, both in health and disease. He was the first to establish the fact that the blood, whilst circulating in the living body, possesses certain properties which it loses when drawn from its vessels, or when the animal is dead. He attributes most of the phenomena of inflammation to the aptitude of the blood to coagulate spontaneously, that is, independently of any chemical agent.

We have alluded consecutively to those authors whose views mostly grew out of Haller's discoveries in Physiology. In 1706,

Francis Sauvages was born in Languedoc, a province of France. He was the first to arrange a Methodical Nosology, on the same principle of division into classes, orders, genera and species, as those which Linnæus, who was his contemporary, had so successfully employed in the various departments of Natural History. His labors in this respect did much to facilitate medical study and investigation, by introducing accuracy in the use of terms, and aiding to discriminate in the characters of disease.

William Cullen, a contemporary of Haller, was born at Lanark, Scotland, in 1712. Notwithstanding so much had been accomplished in Anatomy, Physiology, and Pathology, by Haller, Bichat, Fontana, Borden, Hunter, Fabre, Winslow, Bernard, Albinus, and others, and in Nosology by Sauvages, still the *practice of medicine* advanced but little. From Hippocrates to Haller, men had been so occupied with their various theories of vital phenomena, in health and disease, with their speculations and hypotheses respecting hot and cold, moist and dry, ferments and humors, that their practice had been mostly untrammelled by speculation, and left to a considerable extent to simple observation.—And even when speculations were indulged in respecting practice, those speculations themselves usually had very little influence upon actual practice. Scarcely without its being known, and much more without its being admitted, the practice of medicine was almost necessarily empirical. From the time when it was the custom to expose patients in public places for the observations and suggestions of passers by, and votive tablets were deposited amongst the archives of the Asclepiadæan temples, to the time of Cullen, the practice of medicine had never become completely subservient to hypothesis and speculation. It is true that from Galen to the beginning of the present century, the doctrine of Empiricism, or the term, at least, had fallen into great discredit. It constituted the leading feature in the Hippocratean doctrine, and gave the chief glory to the celebrated Alexandrian School of Medicine. Its principles were avowedly the rule of practice, until writers endeavored to explain the philosophy of medical practice, by the systems of philosophy then prevailing. The vain endeavor to establish, *a priori*, a system of Therapeutics, based not upon actual *experience* in each case, or in reference to each species of disease, but upon a speculative philosophy, or in other words, what has been boastingly denominated *rational medicine*, has been the prolific cause of more fatal errors in the *practice* of medicine, than all other causes combined. Renouard—and no man is more able to do it—clearly, and by the most rigid logic establishes the thera-

peutic proposition, that "*A treatment which has procured the cure of any disease whatever, will cure also, all diseases identical, or rather homogeneous to the first.*" This proposition, or axiom, he bases on three conditions: "*homogeneousness of disease, identity of curative means, and the knowledge of a treatment applicable to each morbid species.*" He has also clearly demonstrated the truth that a *methodic Empiricism* alone is capable of furnishing reliable rules in medical practice.

But after this digression we return to Cullen. Few writers have done more to retard the true progress of analytical and empirical practice than he. Let us glance at his views, and ascertain if they abide the test of logical induction. Assuming the doctrine of irritability as a fixed fact, he endeavored to base a system of practice upon this principle. Regarding this as a primitive element, one beyond our researches, he takes it for granted without attempting an explanation of its immediate cause—endeavoring afterwards, however, to explain the phenomena of irritability, by attributing them to the "play of an extremely subtile fluid, which the brain secretes, and which is distributed every where by the nerves." Having proceeded one link further backwards in the chain of causation, he is driven to the necessity of explaining, or attempting to explain, the origin of this nervous fluid, which he derives "from the most subtile portion of the blood and lymph, which are carried to the brain by means of the contraction of the heart and arteries." This irritability or contractility is caused by the play of a subtile fluid; this subtile fluid originates in the blood and lymph, and is carried to the brain by irritability or contractility of the heart. This is certainly reasoning in a circle, and what logicians denominate the vicious circle. Like Hoffman, Stahl, Sydenham and others, who have endeavored to establish an *a priori* system of rational medicine, he ends with the assertion that inasmuch as the phenomena of life form a circle, it matters not at what particular point their study is commenced or terminated. In this dilemma, he sometimes attributes the functions of the body to the circulation of the blood, at others to the nervous system.

In his Therapeutics, he repudiates the Stahlean and Hippocratean doctrines of the power of Nature in the cure of disease, proscribing all specifics, and declaring "that the cure of diseases should be particularly and nearly uniquely founded on their proximate causes." He soon contradicts these positions, both in his writings and in his practice. In his Institutes of Medicine he says: "I have testified elsewhere my repugnance for specific medicines, but we shall, perhaps, be forced to retain many of them still,

though we should make efforts to diminish their number as much as possible;" and accordingly "many of them" are actually found in his Materia Medica.

Rejecting the autocracy of Nature in opposing disease, renouncing the expectant method, repelling the empirical *in his writings*, he yet admits them all *into his practice*. He had the practical wisdom never to allow his speculations, nor the dogmatic rules which he had laid down to guide others in their practice, to interfere with his own. Though he was an advocate of solidism, yet he employed remedies that evidently act upon the humors, such as *alterants*, ant-acids, ant-alkalies, etc. He often states clearly the indications of cure from the phenomena of the diseases, without stopping to inquire whether or not they conformed to his theoretical explanations. Thus we have seen that with Cullen, one theory contradicts another, and that his practice contradicts all his theories.

Cullen explains Fever and Inflammation as follows:

"Our doctrine of Fever," he says, "is reduced to the following principles: the remote causes are certain sedative influences, acting on the nervous system, which, diminishing the energy of the brain, produce, necessarily, debility in all the functions, and particularly those of the minute vessels of the surface. Nevertheless, such is at the same time the nature of the animal economy, that this debility or atony (the proximate cause of fever) becomes an indirect stimulant to the vascular system. This stimulant, aided by the accession of the chill, and of the spasm which accompanies it, augments the action of the heart and great arteries, and continues thus until it is able to re-establish the energy of the brain, and communicate this energy to the small vessels, and re-animate their action, and especially, by this means, destroy their spasms. The latter being relieved, the sweat, and all the other signs of relaxation of the excretory conduits take place."

"All the phenomena of Inflammation," he again says, "concur to prove that the impetuosity of the circulation of the blood is accelerated in the affected part; but in this case, the action of the heart is not always augmented; we may therefore presume that the acceleration of the circulation of the blood in the affected part, is due especially to the augmented action of the vessels of the affected part itself. * * * * The spasms of the extremities of the arteries that sustained the increased action of the blood, which it pushed into them, must then be regarded as the proximate cause of inflammation, at least in all cases when the inflammation is not

produced by the direct action of stimulants ; and even under such circumstances we may suppose that these occasion a spasm in the extremities of the vessels."

These views coincide with those of Hoffman, who attributed all disease either to an augmentation of tension, a spasm, or to atony, a relaxation. Cullen, however, places the point of departure of morbid phenomena in the nervous fibrillæ, which are always supposed to receive the first impressions of morbid agents, and communicate them at once to the last arterial ramifications, whilst Hoffman considers the excessive afflux of blood as the first motor of abnormal movements in the parts, as the primitive cause of the alternate tension and relaxation of the fibres.

We have said Cullen's practice did not conform to his own theories. In continued fevers, for example, he recognizes three general indications to be fulfilled; first, to moderate the violence of the re-action; second, to remove the causes and prevent the effects of debility; third, to arrest the tendency of the fluids to putrefaction. In intermittents he points out three curative indications. First, during the period of intermission, to provide against the return of the paroxysm; second, during the paroxysm to take such steps as would procure a perfect crisis of the disease; third, to remove obstacles which might prevent the fulfillment of the first two indications. This is good synthetic doctrine, and would necessarily lead to empiri-methodic treatment. The indications are first clearly stated, and we have but to employ such remedies as are known *from experience* to fulfil such indications. How different this *practice* from Cullen's *theory*, " that the cure of diseases should be particularly and nearly uniquely founded on a knowledge of their proximate causes."

It requires but a glance at the History of Medicine, and we have aimed but to glance at some of the more prominent names and systems in its annals, to be convinced that from Hippocrates to Cullen, contradictions, doubts, speculations and hypotheses constitute its leading features. Borsieri points out twenty different and often contradictory theories respecting the proximate cause of inflammation, proposed by some of the more prominent writers from Hippocrates to Haller. This enumeration does not include the many from mediocre writers, surely a large class, nor a large number which may be supposed to have escaped his notice. But the most prolific source of contradictions, as well as inconsistencies and absurdities, is to be found in the various *theories of practice.* We have spoken of Cullen in the preceding chapter. No sooner had his system, the work of genius, learning, and long years of

patient research, been fairly promulgated to the world, than a rival system sprang up at his very threshold; a system to be succeeded in its turn by others, as they should come and go in the progress of medicine. This brings us to the celebrated John Brown, a man scarcely less prominent in the Old School History of Medicine than his distinguished patron and preceptor Cullen himself.

Brown was born of obscure parentage, in the small village of Berwick, Scotland, in 1785. At the age of twenty he went to Edinburgh to study the Languages, preparatory to entering the Church. He soon distinguished himself as a linguist, manifesting also a decided inclination for scholastic controversy, a pedantic tone of manner, and a somewhat irregular conduct. His religious views soon underwent a change, inclining him to free thinking and free living. Having translated a medical thesis into Latin, for a student of the school at Edinburgh, which received many encomiums, he decided to devote himself to the medical profession. Admitted gratuitously to the medical lectures, and writing Latin for such as preferred paying for the same to performing it themselves, he was enabled to pursue his medical studies. Cullen was particularly friendly to him, taking him into his family as tutor to his sons, and permitting him to repeat and enlarge upon his own lectures in the evening, to those students who chose to attend. For twelve consecutive years this friendly relation existed between them, though possessing such opposite characteristics. Brown was particularly grateful for the patronage of his preceptor, he aided him in his labors, and constantly praised him. Some trifling matter, however, was at length permitted to interrupt their friendly relation, and their former friendship was changed into inveterate hatred. This occurred in 1778. Being an unsuccessful candidate for one of the medical chairs in the Edinburgh School of Medicine—defeated as he supposed through Cullen's influence—he soon determined to establish a new and rival system of medicine. His first publication was entitled "Elements of Medicine." The eulogies which his work received, and the encouragement of many friends, determined him to deliver a course of public lectures for the purpose of promulgating and establishing his novel theories. This led to an angry contest between master and pupil, which agitated the Edinburgh University for several years. Brown's pride being inflated by success, and possessing an impassioned eloquence, which almost annihilated all opposition, he became at length indifferent to his best friends, thus alienating from him the entire Faculty of the University, who endeavored to interrupt his teach-

ing. Though still sustained by partisan friends, and borne up by his natural pride, he was unable to make way against the storm. In 1786, having long desired a broader field, he proceeded to London, where in two years he died, at the age of fifty-two, a victim to intemperance and irregular habits.

Brown borrows one or two ideas from his preceptor, yet from this point there is a wide divergence. Though, in some instances, Cullen had located the primary focus producing vital phenomena in the blood, yet his more settled theory was "that the nervous system receives the first impression of excitants, and transmits it afterwards to the other organs endowed with motion and vitality." Brown has a similar notion. "Life," he says, "is only sustained by irritation. It is only the result of the action of incitants on the irritability of the organs." This irritability must, of course, since the days of Haller, be located in the nervous system. Thus one point of agreement. Cullen considers the atony of the small vessels as the proximate cause of fever. Brown admits, with but about three exceptions in a hundred, all diseases to be hypo-sthenic, or dependent upon an under-irritation. Thus another point of agreement. With this exception they differ widely, or are in direct opposition.

To avoid the contradictions of Cullen and others, he professes to explain the rationale of nothing. As irritability plays an important part in his system, he must necessarily say something about it. "We do not know," he says, "what irritability is, nor how it is affected by inciting agents, but whatever it may be, every being which begins to live is provided with it to a certain degree. Our ignorance on the nature of this faculty, the poverty of ordinary language, and the novelty of the doctrine, obliges me to employ peculiar expressions. I will say that, commonly, irritability abounds when we apply a slight stimulus; that at other times it fails, is crushed or consumed when the stimulus is too violent.—Here, as elsewhere, we must hold to the truth. Avoid carefully, since they are nearly incomprehensible, the dangerous question of causes, that venomous serpent of philosophy. Let no one, then, believe, from what I have just said in regard to the nature of irritability, that I pretend to decide if it is a substance, and therefore sometimes augments, and again diminishes; or if it is a faculty inherent in matter, which is sometimes excited and again languishes; nor that I wish to resolve in any manner a question so abstract. These researches have nearly always done much injury to science."

On this passage Renouard makes the following comment: "Brown," he says, "employs here the same artifice as Barthez. To evade the objections that might be brought against it, if he should affirm that irritability is a substance, or if he affirmed that it is a faculty inherent only to the organs, he shelters himself behind the doubt. By this artifice he reserves to himself the advantage of being able to consider this equivocal being, sometimes, as distinct from all parts of the body, having its own proper existence, and again, as united to the organs in an inseparable manner. But the doubt of Brown is only the ruse of the sophist. In every other part of his work, we do not find the least appearance of skepticism; every where its tone is dogmatic and affirmative. The author considers so well irritability as a being distinct from the organism, that he even goes so far as to attribute to it the formation of the organs. 'The first cause,' he says, 'of the formation of the solids, and the sole means of their subsequent sustenance, is irritation.'

"This is rapid progress in a little time. This timorous philosopher, who dared advance nothing touching the nature of irritability, who would banish from his doctrine the venomous serpent of causes, does not hesitate now to say that irritability is the first cause of the formation of solids; that it is what creates and what determines the state of the simple solids and the humors. The skepticism which he affected at the commencement is but an oratorical artifice, made use of to introduce his physiological principles without discussion. In fact, this principle could not resist a serious examination, for in the outset, an impassable objection could be made to it; for it might be said, if the first cause of the formation of the solids is irritation, on what does it exercise itself anterior to their existence? There is no response possible to such a question in Brown's entirely Solidist system." This exposes clearly the fallacy of Brown's logic, although we must admit that he arrived in the development of his system very nearly to what we consider the true nature of disease, and its treatment.

He distinguishes only two pathological states, one depending upon excess of irritability, and denominated the *sthenic diathesis*, the other upon the absence, more or less, of irritability, which he denominates the *asthenic diathesis*. These two states, he considers, affect the entire economy, rather than any particular organ. He considers a local affection of but little importance. By a mathematical calculation, he estimates any partial or local affection to be to the general affection of the rest of the body, in the

ratio of six to three thousand. He concludes, and we think not unjustly, that in general disease, local affections must be treated by remedies affecting the general organism.

After reducing all diseases to the two types, sthenic and asthenic, he considers the latter to prevail to a very large extent over the former, in the ratio of ninety-seven in a hundred. In this estimate we consider him altogether correct. We doubt if there can be a diseased or morbid condition of any part without a diminution of its vitality; or in the language of Brown, without *asthenia*. Believing this, we believe in the efficacy of stimulants, *healthy stimulants*, not Alcohol, Opium, Cantharides and Mercury, in the treatment of disease. We believe also with Brown in the use of *general remedies* for partial or local affections.

For a time the system of Brown divided the medical world in Europe. His doctrines spread in Italy, Germany and Great Britain, also in this country. In Italy, however, they were soon modified. Rasori, although admitting Brown's classification into *sthenic* and *asthenic*, completely reversed his numerical proportions, making the sthenic preponderate largely, requiring, instead of stimulants, contra-stimulants, such as antiphlogistics and sedatives. In France, the doctrines of Brown were making progress when they met with a powerful antagonist in the person of Broussais. He attempted to reverse the ultimate position of Brunonism, as it was designated, contending that the general debility of the sick coincides more frequently with an exaltation of the sensibility of organs; whence he deduces the conclusion, that instead of employing stimulants, it is necessary to diminish the energy of the habitual stimulation, by employing debilitants and sedatives.

CHAPTER VII.

Discrepancies in Medicine—True Aim of Medical Science—Anecdote of Talbot—Deficiencies of "Regular Medicine"—Opinion of Bichat—Of Broussais—Of Louis—Of Pinel—Of Trousseau and Pideaux—School of Montpelier—Giacomini—National Systems—Hahnemann—Homeopathy—Opinion of Thatcher—Of Graham—Of Gregory—Of Lieutaud—Of Sydenham—Of Eberle—Of Chapman—Of Jackson—Of Bigelow—Of Brown—Of Whiting—Of Rush—Of Good—Of Shattuck—Apologue of D'Alembert—Opinion of Donaldson—Of Forbes.

In contemplating this state of Medical science—in looking too over the vast domain it has occupied in the world of letters, from Æsculapius to our own times, and counting up its discrepancies—in arraying before us its ponderous tomes, and enumerating their dogmas and chimeras, their opposing fallacies and glowing contradictions, we cannot avoid the trite but apposite saying, "Who shall decide when Doctors disagree?" This too becomes a serious question. Health and disease, life and death, are in the issue.—We are led, also, to make the simple but important inquiry, what is, or what should be, the aim and end of all Medical Science?—Unquestionably to relieve the sick, to prevent and cure disease, and to prolong life. *But has it, to any satisfactory extent, accomplished these results?* Doubtless it is very interesting to the Anatomist to be able to unfold and unravel all the minutiæ of the *laminæ*, the *fibrillæ* and the *cellulæ*, to trace the structure, the form and position of the minutest *glandulæ*, and the thousand complex and complicated organs and parts that compose the human organism. It is, perhaps, still more deeply interesting to the Physiologist, to be able to determine the uses of all those parts and structures and their wonderful adaptations to their various uses in the animal economy. It may delight the Pathologist to trace out the secret workings of the various morbid causes in the system, and determine their progress and final result. It may be a matter of pride to the Semiologist, that, from a few external manifestations, he is enabled to ascertain the nature, location, and progress of any particular disease; and so the advancement made in all the vari-

ous branches of Medical Science, the splendid developments of modern research, are imperishable monuments to the energy, the toil, the skill and the talent of modern investigators. But still, all these, though the glory and the pride of the age in which we live, do not settle the question proposed. When tortured with pain, or prostrated by disease, when perchance the cold hand of death is upon the sufferer, what satisfaction to him to know that his physician can tell him in learned phraseology all about the *philosophy* of his disease. Can he relieve him, can he save his life and restore him to health, are the only questions that interest him at such a time. They are the main questions that should concern every one who devotes himself to medicine. Some time during the seventeenth century, at a period when Peruvian bark had fallen into discredit, a man by the name of Talbot, taking advantage of this circumstance, commenced its use as a secret remedy. He gained a great name, first in London, amassing immense wealth, when he went to Paris, where the King purchased his secret at an enormous sum, with a pension for life. Being called one day in consultation with a number of physicians, one of whom had been treating, for a long time, a chronic fever without effecting anything, the learned doctors in attendance, desiring to test the depth of Talbot's learning, when all was silence, the dean of the consultation gravely asked him, "What is a fever?" "A fever," Talbot reverently replied, "is something which I cannot define, but which I can cure, whilst you, perhaps, may be able to define, but cannot cure it." The true touch-stone to any system of medicine, and to all systems, is simply, *can it cure?* can they cure? A correct and reliable *Therapeia* is, most undeniably the *ultima thule* of all medical science. If the labor of the Anatomist, the Physiologist, and all others who devote themselves to this science fail, ultimately, in this, those labors will be of little avail. But they will not fail. Though from the fatality that still attends the prevalence of any serious form of disease, one does not readily see on what to predicate such a faith. Did we require more than the tables of mortality, more than our daily observation to convince us of the lamentable deficiencies, the almost utter worthlessness of what is boastingly called the "Regular System" of medicine, so far as the cure of disease is concerned; yea more, if we desire authority to show that it is a system frought with danger, one ever bearing death in its train, we have but to turn to the testimony of those who stand highest in its ranks.

We might ask, too, and the question is a significant one, why

have the people, for these many years, been willing to swallow such vast quantities of "Patent Medicines." Why have the Brandreths, the Townsends, Ayers, Jaynes, Fahnestocks, *et id genus omne*, amassed princely fortunes by puffing and peddling quack-nostrums, whilst the "regular" doctors have been starving, if it be not that the "regulars" themselves have failed utterly to fulfil the expectations which their boasted science had created.

But what is the testimony of the most distinguished amongst the "regular" ranks in regard to their own system of medicine, and its value in the treatment of disease? We may disregard, if we please, the opinions of men, however exalted, outside the profession, but when those who know best, in moments of truthful inspiration, have spoken out, and in a manner, too, calculated to bring ridicule and contempt upon a system to which they had devoted the best portions of their lives, is it reasonable to doubt them? From Galen to the present day, the "quackery," "ignorance," and "avidity" of the profession have been the frequent theme of its own members. But we commence with Bichat. In 1818 he wrote as follows:—

"We have yet had in Materia Medica no general systems; but this science has until now been influenced successively by those who were leaders in the profession, and each one of these has, if I may say so, forced upon it his own views. Hence the vagueness and uncertainty which it presents to us to-day. An incoherent assemblage of incoherent opinions, it is perhaps of all the physiological sciences, the one which shows plainest the contradictions and wanderings of the human mind. In fact, it is no science at all for a methodical mind, but is a shapeless conglomerate of inexact ideas, of observations often puerile, of illusory remedies, and of formulas as oddly conceived as fastidiously arranged. It is said that the practice of Medicine is repulsive. I say more than this: it is, in respect to its principles, taken from most of our Materia Medicas, impracticable for a sensible man. Except the medicaments whose effects are fully established by strict observation, such as evacuants, diuretics, sialagogues, anti-spasmodics, etc., that is, those which act upon a determined function, and to what does our knowledge of the other articles amount?" *

This is high authority, and clearly points out the radical defects of the system to which it refers. The no less distinguished disciple of Bichat, Broussais himself, one of the great and brilliant

* General Anatomy, Vol. I. page 17.

lights of Allopathy, a man, who, by an extensive observation and practice in hospitals, in armies, and elsewhere, and who by his genius and intellect was capable of judging correctly of a system he had so studied, says of it:

"Look back, and recall what we have said in regard to the vices of medical practice; imagine, in all parts of the civilized world, legions of physicians who do not even suspect the existence of gastric inflammation, nor the influence which this phlegmasia exercises upon the other organs; see them pouring floods of vomits, purgatives, heating remedies, as wine, alcohol, liquors impregnated with bituminous substances and with phosphorus, upon the sensitive coats of the phlogosed stomach; contemplate the consequence of this medical torture, the agitation, trembling, convulsions, and phrenitic delirium, the cries of pain, tortured expression of face, and the burning breath of all these unfortunate ones who beg for a drop of water to allay the thirst which devours them, and then receiving as answer but a new dose of the poison which has reduced them to that horrible state; * * * * and then decide whether medicine has, until now, been more useful than injurious to mankind. I agree that it has rendered suffering humanity the service of offering it consolations, by lulling it continually with illusory hopes; but you must also agree that such a utility is far from being sufficient to elevate Medicine to the same rank with other natural sciences, but it seems to reduce it to a level with astrology, superstition, and all sorts of quackery.

"Thank me, kind reader, for I have shown you but one-third of this picture, whose colors grow darker and darker. What I have given suffices to prove that the epigrams of philosophers and poets, upon the faults of physicians and the pernicious effects of their Art, are but feeble sketches by the side of this picture, at once so animated and so frightful."

M. Boullaud says of those persons who sometimes ask him if he believes in Medicine, "In their opinion, Medicine should, to a certain point, be assimilated to the science of those Augurs who could not look each other in the face without laughing." Renouard says of this remark, "M. Boullaud should rather be astonished that, after the declaration of so many illustrious physicians against this science, there are *still persons credulous enough to believe in it, and bold enough to invoke its aid.*" Verily it must require boldness to invoke the aid of a system that employs the lancet, blister, hydrocyanic acid, arsenic and the like, a system, which, by one of

its own disciples (Good) has been pronounced "the cause of more deaths than famine and pestilence combined."

M. Louis, in Memoirs of the Society for Medical Observations, 1737, has the following:—

"The physicians of antiquity have given us very incomplete descriptions of the diseases which they observed. They have left us numerous therapeutical precepts, but they are deprived of proof. * * * The modern physicians have scarcely been more successful. * * * And still we count among the physicians of antiquity, as well as among their successors down to our days, illustrious men, of rare capacities, who apparently wanted nothing to advance science, especially since pathological anatomy has been allowed to be cultivated without opposition.—How then, is it that science owes them so little in general, and that its history is in many respects only that of their errors or of their systems."

The celebrated Pinel, after having witnessed the total inefficiency of the prevailing systems of Therapeutics, their utter failure in the treatment of disease, declares that the only problem he is able to solve in all his labors, is simply, "A disease being given, determine its true character and the rank it must take in a nosological table." Surely if Medical Science, in the hands of such men, can achieve nothing higher than this, suffering humanity may expect but little from its cultivation.

In a treatise upon Therapeutics and Materia Medica, by M. M. Trousseau and Pideaux, published in 1841, they give very little credit to the systems that have preceded them. They say:

"We do not believe that by a work of the nature of the present one, we should or can set right an entire generation, which according to our opinion, turns its back on truth, and which will have to march, perhaps for some time yet, in error, until that shall fall by its own consequences."

Whilst one class of writers repudiate everything that has preceded them, another on the contrary, repudiate everything modern, and believe only in the antique. Of the latter is the celebrated school of Montpelier, France. With them "the physiological idea of Hippocrates, illuminated and extended by Barthez, forms to this day the foundation of their medical instruction; and M. Lordat, one of the most distinguished professors of that school, has lately published a work consecrated to the development and the demonstration of this Hippocratic idea."

Not that from time to time some discordant voice is not heard amid this harmony; but if some heresy does show itself there, it does not ostensibly destroy the orthodox doctrine. but rather softens and hides its opposition under reverential forms. Thus the historian of the medical doctrine of Montpelier, after having enumerated the works of Barthez, and paid a just tribute of praise to his genius, gives an excellent critique of his system.

He goes still farther. He announces in different places a maxim, which, if true, overthrows completely the medical doctrine of Barthez and of all those who have followed or may yet follow the same route. It is as follows: "Physiology cannot serve as a basis for practical medicine."

Such a proposition, I repeat it, does ruin not only the system of Barthez, but also many other ancient and modern systems.

We have seen that Brown attributed all diseases to *sthenia* and *asthemia*, that he supposes ninety-seven per cent. to depend upon asthenia, that Rosari reversed this numerical proportion; we have seen that each author, with a few exceptions, has been anxious to demolish all the systems that had preceded him, and to build his own upon their ruins. Thus they continue. Giacomini, an Italian, a celebrated partizan of the doctrines of Rosari, says:—

"When we think, from what sources the ancients obtained their notions of materia medica, we cannot be astonished that Stahl has called the pharmacology of his time a stable full of offal, and that Bichat has judged so unfavorably of that of his epoch. In this we have the condemnation *en masse* of ancient medicine."

In speaking of contemporaneous medicine he says: "While the art of diagnosis has made immense progress in France, that of application of medicaments has been entirely neglected. The special doctrine of revulsion plays a considerable part in the French schools. Formerly all was sympathy, *consensus*, in diseases: now everything is antagonism or revulsion."

"This is as much as to say, Frenchmen understand diseases very well but cannot cure them—that we treat them irrationally. What great advantage! to be able to explain to a patient the nature of his disease, to discuss with more or less skill the origin, the seat, the progress, and the probable consequences of the affection of which he suffers, but to be unable to relieve him?"

It is a curious fact, with which the reader may not be familiar, that generally, a French physician cares less about curing a disease than he does in having given a correct diagnosis. That is to say, if in a *post mortem*, he finds his diagnosis to have been correct, he

is better satisfied, than he would have been, had his patient lived to have proved his diagnosis wrong.

Whilst in England, France and Italy, we have contending and contradictory schools of Medicine, Germany must needs have her own national system, one truly Germanic.

"This was thoroughly understood by Dr. Hahnemann; consequently he commenced dreaming, meditating and experimenting, but especially dreaming, until at last a ray from on high illuminated his mind; the true law of past, present, and future cures appeared to him like a revelation, as a pure action of divine love. Great physicians of antiquity and of modern times, whose collective works of thirty centuries have served to raise the scientific monument of the Healing Art—illustrious men, living and dead, bow before this medical Messiah! Your lights were but darkness, your teachings pure deception, your practice a series of blunders and homicides!

"The same would be the case yet, if the pious, the modest Hahnemann had kept to himself his great discovery. But he did not wish to deprive his fellow men of such immense blessings; he hastened to propagate it everywhere; and if the entire human species does not enjoy these blessings to-day, it is not from want of good will on his part.

"Do not imagine, dear reader, that I am jesting, or exaggerating the mistico-emphatic language of the German thaumaturge, in order to render him ridiculous. Hear him speak, himself. After having recounted how he had succeeded in finding the only true way of obtaining veritable, easy, prompt, and certain cures, he exclaims: 'For truth is eternal, like divinity itself. Man may neglect it for a long time, but the moment comes at last when, in the fulfillment of the decrees of Providence, its rays pierce the cloud of prejudices, and throw over mankind a beneficent light, which henceforth nothing can extinguish.'

"'If I did not know that I am placed in this world in order to improve myself as much as possible, and to do to others all the good of which I am capable, I should consider myself very foolish in making the public acquainted, before my death, with an Art of Healing which I alone possess, and whose advantages I might consequently have enjoyed alone, by concealing this Art.'

"The inventor of Homeopathy and infinitisimal doses might have been asked—if you had kept your secret until you descended into the grave, who could guarantee you that it would not have been buried with you? And even if it should not have fallen into

oblivion after your death, you would not have enjoyed during your life such noteriety; you would have passed away in some obscure corner of the world, and your exit would not have caused the least sensation. You had therefore, a great and immediate interest in divulging as early as possible your discovery, independently of the satisfaction which every man, every Christian must feel in fulfilling a duty toward humanity. For nothing equals if we believe you, the frightful evils which were inflicted upon mankind by former Medicine—this fatal Art, as you call it, which for centuries has enjoyed the power to decide, arbitrarily, on life and death, which destroys ten times more than do the most murderous wars, and which makes millions of others infinitely greater sufferers than they were at first."*

But we have more testimony of the highest order, against Allopathy. Those who desire to read it in connection with the entire text, can find it by the references we give. Some passages thus read, might perhaps, convey a meaning, in some degree, different from that received by reading them as here detached; but take them as we will, do they not contain a fearful account of a system of Medicine to which millions of our fellow beings annually trust their lives and their health, and by which myriads are swept to a premature grave.

Dr. James Thatcher, author of the "American New Dispensatory," of the "American Modern Practice," "The Biography of Eminent Medical men," etc., says, "The melancholy triumph of disease over its victims, and the numerous reproachful examples of medical impotency, clearly evince that the combined stock of ancient and modern learning is greatly insufficient to perfect our science. Far, indeed, beneath the standard of perfection, it is still fraught with deficiencies, and altogether inadequate to our desires." Mod. Practice, page 8.

Dr. James Graham, the celebrated Medico-Electrician of London, says of medicine, "It hath been very rich in theory, but poor, very poor in the practical application of it. Indeed the tinsel glitter of fine-spun theory, or favorite hypothesis, which prevails wherever medicine hath been taught, so dazzles, flatters and charms human vanity and folly, that, so far from contributing to the certain and speedy cure of diseases, it hath in every age proved the bane and disgrace of the healing art."

"All the vagaries of medical theory," says Dr. Gregory of London, "like the absurdities once advanced to explain the nature

* Renouard.

of gravitation, from Hippocrates to Broussais, have been believed to be sufficient to explain the phenomena (of disease,) yet they have all proved unsatisfactory." Practice, page 31. "The science of medicine has been cultivated," continues Gregory, "more than two thousand years. The most devoted industry and the greatest talents have been exercised upon it; and, though there have been great improvements, and there is much to be remembered, yet upon no subject have the wild spirit and the eccentric dispositions of the imagination been more widely displayed. Men of extensive fame glory in pretending to see deeper into the recesses of nature than nature herself ever intended; they invent hypotheses, theories, and distort facts to suit their aerial creations. The celebrity of many of the most prominent characters of the last century, will, ere long, be discovered only in the libraries of the curious, and recollected only by the learned."

Of the Parisian School, in the last century, Dr. Joseph Lieutaud, Physician to Louis XVI., etc., said in his Synopsis of Medicine, page 1, that in what had been written before his day, he found it "difficult to disengage certainty from uncertainty, and to separate the useful from the trival. Hence, many of no mean rank have doubted whether it would not be better to give up the undertaking, and confine themselves to new observations, out of which, when well investigated and arranged, there might be produced a sounder theory. The uncertainty of medicine, which is thus a theme for the philosopher and the humorist, is deeply felt by the practical physician in the daily exercise of his art."

"Physic," says Sydenham, "has ever been pestered with hypotheses, the multitude and precariousness whereof, have only served to render the art uncertain, fluctuating, fallacious, mysterious, and in a manner unintelligible." "Certain it is, that no single medicine has been discovered by their assistance, since their introduction into physic, above two hundred years ago; nor have they let the least light into the affair of administering medicines properly in particular circumstances; but rather served to bewilder us, to perplex practice, and create disputes that are never to be decided without recourse to experience, the true test of opinions in physic."

Dr. Eberle says, (Prac Med. preface, page 6.) "It in now generally and very justly believed, that the artificial, classic, ordinal and specific distinctions of nosology, (the *forte* of Dr. Good,) have an unfavorable influence on the progress of comprehensive and philosophical views in pathology."

Dr. Rush says, in his Lectures in the University of Pennsylvania, "I am insensibly led to make an apology for the instability of the theories and practices of physic. Those physicians generally become the most eminent, who soonest emancipate themselves from the tyranny of the schools of physic. Our want of success is owing to the following causes: First, our ignorance of the disease. Second, our ignorance of a suitable remedy." p. 79.

Dr. Chapman, Professor of the Practice of Physic in the University of Pennsylvania, remarks: "Consulting the records of our science, we cannot help being disgusted with the multitude of hypotheses obtruded upon us at different times. No where is the imagination displayed to greater extent; and perhaps so ample an exhibition of human invention might gratify our vanity if it were not more than counterbalanced by the humiliating view of so much absurdity, contradiction and falsehood."—Therapeutics, vol. 1, p. 47. "To harmonize the contrarieties of medical doctrines, is, indeed, a task as impracticable as to arrange the fleeting vapors around us, or to reconcile the fixed and repulsive antipathies of nature."—Ib. page 23. "As it is, we are plunged into a Dedalian labyrinth, almost without a clue. Dark and perplexed, our devious career, to borrow the fine illustration of a favorite writer, resembles the blind gropings of Homer's Cyclops round his cave. Not the slightest of the causes which have conspired to retard the progress of physic, is the eagerness for rash and indiscreet generalization, by which, at all times, it has been distinguished. But if ever we are to strip our art of its 'glorious uncertainties,' and infuse into the practice of it something of exactness, it will be by pursuing a very different course. To effect so important a revolution, we must studiously examine the phenomena of disease, and, with an attention no less unbiassed, observe the operation of medicines. Thus, perhaps, we shall ultimately learn to discriminate accurately the diversified shades of morbid action, and to apply to each its appropriate remedies."—Ther., vol. 1, page 49. "Availing ourselves of the privileges we possess, and animated by the noblest impulses, let us cordially co-operate to give to medicine a new direction, and attempt those great improvements, which it imperiously demands.'"—Ibid, vol. 1, page 51.

Professor Jackson, of the University of Pennsylvania, tells us, in the preface to his "Principles of Medicine," page 1, that "the discovery of new facts, has shed a light, which has changed the whole aspect of Medical Science, and the works which have served as guides, are impaired in importance and value; they lead

astray from the direction in which the science progresses, and new ones are demanded, to supply the position in which they become faulty."

Dr. Jacob Bigelow, Professor in Harvard University, says, in his Annual Address before the Medical Society, 1835, 'The premature death of medical men, brings with it the humiliating conclusion, that while the other sciences have been carried forward within our own time, and almost under our own eyes, to a degree of unprecedented advancement, medicine in regard to some of its professed and important objects, (the cure of disease,) is still an ineffectual speculation."

Dr. Brown, who as we have seen, studied under the famous Dr. William Cullen, of Edinburgh, lived in his family and lectured on his system, (a system that has as many advocates and practitioners as any other of modern times,) says in his preface to his own works: "The author of this work has spent more than twenty years in learning, scrutinizing and teaching every part of medicine. The first five years passed away in hearing others, in studying what I had heard, implicitly believing it, and entering upon the possession as a rich inheritance. The next five, I was employed in explaining and refining the several particulars, and bestowing on them a nicer polish. During the five succeeding years, nothing having prospered according to my satisfaction, I grew indifferent to the subject; and, with many eminent men, and the very vulgar, began to deplore the healing art, as altogether uncertain and incomprehensible. All this time passed away without the acquisition of any advantage, and without that which, of all things, is the most agreeable to the mind, the light of truth; and so great and precious a portion of the short and perishable life of man was totally lost! Here I was, at this period, in the situation of a traveler in an unknown country, who, after losing every trace of his way, wanders in the shades of night."

Dr. L. M. Whiting, in a dissertation at an annual commencement in Pittsfield, Massachusetts, said, "The very principles upon which most of what are called theories involving medical questions, have been based, were never established. They are and always were false, and consequently, the superstructures built upon them were as 'the baseless fabric of a vision'—transient in their existence, passing away upon the introduction of new doctrines and hypotheses like the dew before the morning sun."—B. M. and S. Jour., vol 13. page 183. "Speculation has been the garb in which medicine has been arrayed, from that remote period when it

was rocked in the cradle of its infancy by the Egyptian priesthood, down to the present day; its texture varying, to be sure, according to the power and skill of the manufacturer, from the delicate, fine spun gossamer-like web of Darwin, to the more gross, uneven and unwidely fabric of Hunter; its hue also changing by being dipped in different dyes as often as it has become soiled by time and exposure. And what has been the consequence? System after system has arisen, flourished, fallen and been forgotten, in rapid and melancholy succession, until the whole field is strewed with the disjointed materials in perfect chaos; and amongst the rubbish, the philosophic mind may search for ages, without being able to glean from it hardly one solitary well established fact.

"If this is a true statement of the case, (and let him who doubts take up the history of medicine;) if that enormous mass of matter which has been, time out of mind accumulating, and which has been christened Medical Science, is, in fact, nothing but hypothesis piled on hypothesis; who is there amongst us that would not exult in seeing it swept away at once by the besom of destruction?" —Ibid. page 187, 8.

For these sweeping denunciations of all the labors of his predecessors, Dr. Smith, of the Journal, pronounces Dr. Whiting an "original thinker," and his dissertation an "effort to diffuse light in regions of darkness."

Dr. Rush, says, "Dissections daily convince us of our ignorance of the seats of diseases, and cause us to blush at our prescriptions. What mischief have we done under the belief of false facts and false theories? We have assisted in multiplying diseases; we have done more—we have increased their mortality."

Dr. Thatcher, the venerable author of the American New Dispensatory, says: "Notwithstanding the great prevalence of fever in all ages, and in all climates, and the universal attention which it has excited among medical observers ever since the days of Hippocrates, the disease still remains the subject of much discussion, and its essential nature, as the approximate cause of its symptoms, is still a problem in medical science."—Thatcher's Practice, page 198.

Dr. Good says, "The language of medicine is 'an unintelligible jargon." Nosology, page 35.

Dr. Chapman says, "The Materia Medica is crude, wild and unregulated."

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"The history of practical medicine consists of little else than

a review of the doctrines which have risen and sunk again, concerning the nature and treatment of fever." * * * "It is in this department that observation and research have been most industrious in accumulating materials, and that hypothesis has luxuriated in her wildest exuberance."—Eberle's Practice, vol. 1, page 13.

Dr. Good says, "The science of medicine is a barbarous jargon, and the effects of our medicine on the human system are in the highest degree uncertain, except, indeed, *that they have destroyed more lives than every pestilence and famine combined.*"

Dr. Shattuck, in a Dissertation on the Uncertainty of the Healing Art, read before the Massachusetts Medical Society in 1828, observes, "The Nosologica Methodica of Sauvages comprises ten classes, twenty orders, three hundred and fifteen genera, and two thousand five hundred species of disease; while Cullen has four classes, twenty orders, one hundred and fifty-one genera, and upwards of one thousand species. Good has seven classes, twenty-one orders, one hundred and thirty genera, and four hundred and eighty species. The venerable Rush discovered disease to be a unit. How the faculty concur in their sentiments! Inconsistency, where is thy blush?"

"The following apologue," says D'Alembert, "made by a physician, a man of wit and philosophy, represents very well the state of that science." 'Nature is fighting with disease; a blind man armed with a club, that is, a physician, comes to settle the difference. He first tries to make peace. When he cannot accomplish this, he lifts his club and strikes at random. If he strikes the disease, he kills the disease; if he strikes nature, he kills nature,"—"An eminent physician," says the same writer, "renouncing a practice which he had exercised for thirty years, said, 'I am weary of guessing,"—Abercrombie, Intel. Pow., page 293.

Dr. Abercrombie adds:—

"The uncertainty of medicine, which is thus a theme for the philosopher and the humorist, is deeply felt by the practical physician in the daily exercise of his art."

Although our extracts have accumulated to an almost unpardonable extent, and we have exhibited but a moiety of what we have at our command, we cannot close the present chapter without giving the honest confessions of Dr. Donaldson, a Scotch physician, who held the highest rank in his profession. It will be seen, near the close of the extract, why he was so successful in the treatment of fevers. It was simply by adopting a practice which has ever

proved efficient in the hands of our Reformers—" *purging, vomiting and sweating, the vapor bath, warm teas, etc.*"

" I was educated," he says, " in the Gregorian doctrines of the Edinburgh school of medicine. I was taught the theory of medicine as delivered in his Conspectus, and was exercised in the Cullenian discipline, divested of all its hypothetical errors of spasm and atony of the extremities of arteries. I learned all the branches of medical science under the distinguished and erudite professors of the most celebrated university and school of medicine in the world; I always embraced plausible truths, and rejected visible errors, in theory and practice. I admitted doubtful hypotheses to have no place in my mind, to influence my future practice. Even during my discipleship, I thought for myself and digested their instructions with an unfettered and independent judgment and reasoning, and I had no sooner completed my studies of the theoretical and practical science of medicine, and other branches of learning, in the College of Edinburg, than I repaired to the schools of London, so famous for anatomy and physiology.

" Having finished my intended course in the metropolis of the British Empire, I launched into practice, under the auspices of a real imitator of the Edinburgh school, and a follower of Clarke, Lind, Thomas, etc., and soon had ample opportunities of witnessing the great insufficiencies of the medical practice of the present day, in the hands of the most skillful administrators and practitioners. In this situation I soon had occasion to dissent from the doctrines of the schools, but years elapsed before I could bring myself to deviate from the practice, which they and the most esteemed authors taught in their instructions and works. I hesitated in the old road until I should discover a new way by experience and observation to keep me from stumbling on the dark mountains of doubts and errors. I consulted all the most celebrated writings of ancient and modern physicians ; I searched for light in vain, to direct my steps.

" During my travel in the East Indies, in the years 1810, '11, '14, '15, and '16, I had many opportunities of trying every method of curing diseases of all descriptions, and of proving the virtues and efficacies of all remedies commonly employed by practitioners, as well as making all necessary alterations in former modes of treatment, and in the choice of remedies. Fevers, fluxes, inflammations, affections of the spleen and liver, apoplexies, palsies, spasms, etc., were the great diseases that attracted my attention, being under my own care and treatment in those warm regions,

and I was extremely mortified to find all my remedies ineffectual to reduce inflammation or subdue many of those diseases, by the common method of treatment; and my pride was humbled at the repeated disappointments I encountered, in being baffled to cure them with the common remedies, carried to the same extent, and administered with the same diligence as recommended in books, or by professors of medicine; I administered purges, barks and wine, with the utmost rigor, in all classes of inter and remittent fevers; I exhibited saline purges, opiates, mercurials, sudorifics and nutrients, in cases of dysentry, and found them all ineffectual to arrest the progress of fevers, or to cure the affections of dysentery, in many severe cases. I could not produce an immediate crisis in fevers, nor remove the agonies of fluxes; they still continued to return, or to torture my patients, in defiance of all the remedies that have been recommended by Drs. Blane, Lind, Clarke, Chisholm, Cullen, Thomas, Phillip, Hoffman, Boerhaave, Brown, Farriar, Fordyce, Currie, Darwin, Jackson, Wright, Fowler, Trotter, Haygrath, Heberden, Lietaud, Huxham, Russell, Macgregor, Falconer, Desgnettes, Milne, Dewar, Bisset, Warren, Pringle, Buchan, Churchill, Friend, McCord, etc., who are supposed to have delivered the sentiments of the medical schools in their days. Neither were the remedies employed by the most noted of the ancients, as Hippocrates, Celsus, Galen, Asclepiades, etc., etc., more successful in curing febrile distempers. Having read and studied medicine of the ancients and moderns, I was able to choose those remedies, proposed in their writings, best calculated to cure disorders of the human frame, in all climates of the earth, and to employ them to the greatest advantages, but, without the knowledge of the real nature of fevers and fluxes, I still labored in the dark and could not effect, in all cases, by the use of such remedies, a solution of the disease under my care, with any degree of certainty of success in the commencement. I was unacquainted with the principle on which those remedies acted to bring to a favorable crisis. I longed for that day when my knowledge of the nature of the diseases, and of the virtues of the remedies employed to cure them, would enable me to cure the severest of them at pleasure, and to liberate my fellow creatures from the iron grasp of mortal afflictions, and I began to lament the universal ignorance of the professors of medicine, respecting the nature of diseases.

"From that day till the present, I never have used the remedies commonly prescribed by writers on medicine, neither have I followed the doctrines of the school in the treatment of the febrile

diseases. I determined that no other patient of mine should ever become a victim to the common old treatment pointed out by professors of medicine, and authors of medical books. In the full belief of the doctrine which experience had taught me, I soon had the pleasure of seeing almost all my patients recover from fevers, in the space of two, three, four and five days; whereas according to the old method of treatment followed by my cotemporaries, patients labored a month, six weeks, two or three months, under a violent fever and its fatal dregs, and either died or were restored by the mere efforts of nature, or languished under the irremediable consequences of such disease, during the remainder of their lives, in misery and infirmity.

"Thus it may be perceived, by the foregoing collection of facts, how I came to possess a new doctrine and theory of fevers, and to institute a new method of treatment on the foundation of a sure and certain principle of practice, deduced from this doctrine in the application of remedies more rational and successful than appear in any system of medicine ever exhibited in ancient or modern times, as far as I know, by the annals of medicine; and I now come forward to open the discovery for the general benefit of mankind. In doing this, I shall be under the absolute necessity of exposing and rejecting all former opinions respecting the proximate causes or nature of diseases; I shall have to combat the errors of the learned and the ignorant, both in the theory and practice of medicine: I shall be forced to reject all the erroneous doctrines of the schools in which I was educated; I shall have to defend my sentiments against all the invidious malignities and contumelies of my enemies, on the basis of infallible principles, deduced from and depending on the truths and facts which I have discovered in the nature of these diseases, by experience, observation, reflecting and reasoning, so absolutely necessary to be known before we can succeed in practice. Many self-confident and ignorant pretenders to the science and art of medicine, are inclined to suppose that no errors can exist, in the present theories of the enlightened schools of Europe and America, to combat in the treatment of diseases.

"In fact, no physician whose works I have read, no professor of medicine whom I have ever heard speak on the nature of diseases, has ever discovered, or even hinted at the cure of fever; all have delivered theories, which amount to open acknowledgements of their ignorance of it; or have candidly professed the universal ignorance of all physicians in the world, of the former and present times, respecting the nature of these diseases. 11

"I observed the plan of cure followed by the East Indians in fevers. I saw the practitioners cure the most vehement cases of intermittent fevers in a single day, with such a mathematical precision and certainty, as I never beheld in any region of the earth—by purging, vomiting and sweating, etc. I perceived that they also cured without knowing the nature of the disease, or the principles of their practice; and was led to believe all diseases curable, if we could only discover the remedies against them and would apply those remedies in due time and to sufficient extent, to effect these possible ends. Their method of treatment consisted in the administration of a medicine that effectually purged and vomited their patients, who were obliged at the same time, *to use the steam bath, and drink abundantly of warm teas, until copious or profuse sweat* was produced, and the fever was mechanically reduced, leaving nothing to be done by feeble nature, as the ancient and modern practitioners of Europe were accustomed to do many ages prior to the days of Bottalus and Sydenham.

"Having acquired a knowledge of these things relative to the nature of febrile diseases, I was induced to abandon the common plan of treatment, and to institute a new method of curing them with the use of new remedies."

We cannot refrain from the following, when we are done with the testimony Allopathy furnishes against her own systems, reserving for the next chapter, some extracts respecting particular methods of treatment, and particular remedies employed. We quote from John Forbes, a man whom we know to be regarded as one of the first in the ranks of medicine. He has for a long time occupied some of the highest positions in his profession, as editor, author and physician in Hospitals, in royal families, etc., and his titles are many. He says:—

"The most important inferences unfavorable to Allopathy are:

"That in a large proportion of the cases treated by Allopathic physicians, the disease is cured by nature and not by them."

"That, in a lesser, but still not a small proportion, the disease is cured by nature in spite of them; in other words, their interference opposing instead of assisting the cure."

"That, consequently, in a considerable proportion of diseases, it would fare as well or better, with patients, in the actual condition of the medical art, as now generally practiced, if all remedies, at least all active remedies, especially drugs, were abandoned."

"We repeat our readiness to admit these inferences as just, and to abide by the consequences of their adoption. We believe they

are true. We grieve sincerely to believe them to be so; but so believing, their rejection is no longer in our power; we must receive them as facts, till they are proved not to be so." —Young Physic, page 98.

These are not the idle declamations of a few disappointed aspirants after medical honors; they are the honest expressions of honest men—men, too, whose authority is highest in medical science and literature.

CHAPTER VIII.

Practices and Remedies of Allopathy—Blood-letting—Cause of its declination—Opinion of Lobstein—Of Makintosh—Of Salmon—Of Thatcher—Of Good—Of Maguardic—Of Copeland—Of Morehead—Of a British Surgeon—Of Paget—Cupping and Leeching—Blistering—Allopathic Poisons—Mercury and its Preparations—Calomel—Its Chemical Changes in the System—Graham's Opinion of Mercurials—Opinion of Falconer—Of Harrison—Of Chapman—Of Bell—Of Hamilton—Of Veneral Virus—Mercurial Syphilis—Persistency of Mercurial Impressions—Opinion Of Hunter—Of Carmichael—Hepathic Diseases—Deleterious Effects of Mercury—Opinion of Graham—Of Abernethy—Of Blackall—Of Farre—Of Hamilton—Uncertainty of the Action of Mercurials—Opinion of Miller—Of Bell—Of Watson—Of Joy—Of Miller—Of Bell—Effects of Mercury upon Offspring—Opinion of Flint—Opium—Its Morbid Effects—Opinion of Gallup—Of Eberle—Of Harrison—Table of Diseases—Their Causes and Treatment—Opinion of Flint.

The present chapter will be devoted to some of the particular practices and remedies of Allopathy. The first we notice is *blood-letting*, or venesection. Blood-letting, as has already been mentioned, was first practiced by Podalirius, the son of Æsculapius, about three thousand years ago. Since that time, arithmetic would be largely taxed to enumerate its victims. We are quite sure, that could a person see from one hundred to three hundred ounces of blood drawn from the arm of one of his fellows, for the first time after he had arrived at years of maturity, and the victim too, an invalid, perhaps a delicate female, prostrated by some violent disease, we are sure, we say, that he would be seized with horror, and that he would look upon the practice as the embodiment of barbarity. The very commonness of this thing, however, has divested it of its horror. Yet we do, ourself, remember the terror it struck through our boyish heart the first time we saw the crimson tide of life flowing from the delicate arm of a beloved mother.

Of one other thing we are quite sure, and that is, that the time will come, and we trust it may not be distant, when a practice so *bloody*, so fatal, and so irrational, will be forever banished from the world. We are not ignorant of the fact that blood-letting is far less frequent now, and carried to a far less ruinous extent than

formerly, yet while one of the "blood-suckers," as Salmon styles them, shall wield his fatal weapon, there will, even then, be too much of it. But what has caused this abatement in the use of the lancet? Surely it is not a result of the teachings of their schools and books, although many of them have denounced it to the extent of their use of language. It stands on the pages of their best authors, as the "sheet anchor" of Allopathy. Evidently the lancet has been *forced* from Allopathic practice by public opinion, and by a public opinion formed chiefly through the influence of Medical Reform. But let the champions of blood-letting speak for themselves.

We first quote from the late J. F. Daniel Lobstein, formerly a member of the Medical Faculty at Paris, and former physician of the Military Hospital and Army of Paris, member of many of the most learned societies of Europe, also of this country, Professor in the Medical College of Baltimore, author of several learned works, and a distinguished practitioner.

"A long time has elapsed since I determined to publish my remarks on the pernicious effects of bleeding, which not only during that time, but especially at present, is considered as almost a universal remedy, and frequently resorted to as a restorative in the slightest indisposition; notwithstanding the direful consequences attendant on such practice, it continues to be the main pillar of the medical profession. Were bleeding and mercury totally prohibited, a great many physicians would find themselves in the inextricable mazes of a sad dilemma; their time easily disposed of.

"It is astonishing to find that so many persons, and still more astonishing that so many physicians, have fallen into this extravagance. Blood, as the most precious matter for life, is lavishly squandered where there is no necessity; yes, often without knowledge for what purport.

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"How many thousands of our fellow-citizens are sent to an untimely grave! How many families deprived of their amiable children! How many husbands deprived of their lovely wives! how many wives of their husbands! who have fallen victims to bleeding! and the same may be said of mercury.

"We no more count the loss of blood, by blood-letting, by ounces, but by pounds; each headache, each indisposition is, among physicians, quite a pretence to say 'you must be bled.' In the blood is the human life; without blood their is no heat, no motion of the system; take away from the brain the blood, and the self-cogita-

tive powers will be instantly extinguished. Is it not evident that the most robust persons are such because rich in blood? Certainly it is not such persons who are attacked with nervous weakness.—Strength and blood stand always in direct relation. He who takes blood from the patient, takes away not an organ of life, but a part of life itself.

"In burning fevers, it is by long experience proved, that the most simple fevers by blood-letting become nervous and putrid fevers, of which I can attest many such instances. In pure gastric fever, bleeding is always pernicious; it does not vacate the matter which is situated in the intestinal canal, and can only be removed by gastric remedies; while bleeding in such cases vacates a part of the strength which is necessary to be acted upon, in order to expel the disease.

"It is alleged that the climate of this country requires in all indispositions to be bled, and second, that the people of this country are accustomed to be bled. Let us examine these reasons. 1. How comes it to pass, that during my residence of fourteen years in this country, I can prove by a great number of persons who have been treated by me during that time, and in the same disease in which such persons were treated by physicians of this country, who employed calomel in great quantities, blisters and blood-lettings, cups and leeches to supererrogation, and all of those persons who have not fallen victims to such treatment, their convalescence was very long before they could obtain a little strength; ladies who were very nervous, tormented with hysteric spasms. The former recovered by my treatment in a very short time, and the latter, as I dispensed with the use of bleeding, lost their spasms and became directly better; all which I can satisfactorily prove.

"Where I have not employed bleeding, such persons recovered by my treatment in a very short time. If now the climate of this country should require in all indispositions directly to commence with bleeding, and I have neglected it, all these persons were inhabitants of this country and climate, and all these should have died; but they recovered sooner.

2. "That people in this country are accustomed to be bled, this is a true, a very true verity; but what is the true reason for it? Whether is it the patient or the physician? I believe to speak with justice it is the latter. What does the patient know of what is convenient for him? He complains of headache, cramps in the stomach, colic, dyspepsia, etc., he sends for his physician, in whom he very likely has confidence; he thinks that all that will be order-

ed for him will be convenient for him, and the doctor, after feeling his pulse a little strong, declares to him his severe sentence, 'you must be bled,' and thus is a habit of bleeding established. I know very many cases wherein a physician has accustomed his patient to be bled four times a-day! but time proved the result of such treatment by the death of a great number of such patients. I am certain that all such persons who have been bled a great many times in their lives, their constitutions must become weaker every year; but their repentance in future will be too late."—Essay on Blood-letting.

"Some patients are bled who do not require it, and the consequences are injurious; others are bled who cannot bear it, and who ought to be treated by cordials, and the result is fatal."—Makintosh, page 690.

"No physician, however wise and experienced, can tell what quantity of blood ought to be taken in any given case."—Ibid, page 418.

"In putrid fevers bleeding is not advisable. The loss of a few ounces of blood being equivalent to a sentenceof death."—Gentlemen's Med. Pocket Book, page 35.

"So zealous are the blood-suckers of our age," says Salmon, "that they daily sacrifice hundreds to its omnipotence, who fall by its fury, like the children who, of old, passed through the fire to Moloch, and that without any pity, left to commiserate the inexorable sufferings of their martyrs, or conscious of their crimes which may deter them in future from such villainies, the bare relation of which would make a man's ear tingle, which one cannot think of without grief, nor express without horror."—Synopsis Medicinæ.

Dr. Hunter says, "blood-letting is one of the greatest weakeners, as we can kill thereby."

Says Thatcher, "We have no infallible index to direct us. It is impossible, from the state of the circulation in fever, to point to any criterion for the employment of the lancet. The state of the pulse is often ambiguous and deceptive. Circumstances require the nicest discrimination, as the result is often very different in cases seemingly analogous. A precipitate decision is fraught with danger, and a mistake may be certain death."—Practice, page 208.

"The immediate effect of profuse and repeated bleeding," says Dr. T. Mason Good, "is exhaustion. While this exhaustion continues, there is a diminution of action of every kind, and hence an imposing appearance of relief to the symptoms of disease; but it

no sooner takes place than an instinctive effort is made by the *vis medicatrix naturæ* to remedy the evil thereby produced, and to restore the system to its former balance of power. This balancing is called a rallying or reaction of the living principle. The arteries contract to adapt themselves to the measure of blood that remains, the sensorial organ is roused to the secretion of a large portion of nervous power to supply the inordinate drain that takes place during the general emotion. All is in a state of temporary hurry, and urgency, and, for the most part, irregularity of action, while the instinctive effort is proceeding; and hence, no sooner is the immediate effect of prostration, exhaustion, or syncope overcome, than the heart palpitates, the pulse beats forcibly with jerking bound, the hand shakes, the eye flashes fire, and the ears ring with unusual sound. Now, it often happens that these concurrent signs are mistaken for proofs of latent or increased vigor, instead of being merely proofs of increased action, and action that adds as largely to the exhaustion as the depletion that produced it; and the unhappy patient is bled a second, a third, and even a fourth time, till no action follows, at which time it is supposed that the entire, plethora or inflammatory diathesis is subdued and lulled into a calm, because the patient has been so far and fatally drained of his living principle that there is no longer rallying or reactive power remaining, and gives up the ghost in a few hours, to the treatment instead of the disease."—Study of Medicine, vol. 1, page 407.

Professor Maguardic in his lectures in the College of France, says: "I assert loudly, and fear not to affirm it, that blood-letting induces, both in the blood itself and in our tissues, certain modifications and Pathological phenomena which resemble, to a certain extent, those developed in animals deprived of atmospheric oxygen, of drink and of solid food." * * * "Engorgement, œdema pneumonia, and the entire train of what people are pleased to call inflammatory phenomena, are products of loss of blood." He considers the utility of blood-letting, at best problematical, while its injurious effects are at once positive, frequent, and widely extended.

"But it gradually happens that the inordinate depression—the very full syncope that is thought essential to the securing of advantage from the depletion is followed by an equally excessive degree of vascular reaction—with which all the symptoms of inflammation return; and the general reaction is ascribed entirely, but erroneously, to the return of the inflammation instead of the latter being imputed to the former, which has rekindled or exasperated

it, when beginning to subside. The consequence is, that another very large depletion is again prescribed for its removal, and the patient, recollecting the relief it temporarily afforded him, readily consents, blood is taken to full syncope—again relief is felt—again reaction returns—and the local symptoms are reproduced, and thus, large depletion, full syncope, reaction, and the supervention, on the original disease, of some or all the phenomena described as the consequence of excessive loss of blood, are brought before the practitioner, and he is astonished at the obstinacy, cause and termination of the disease, which under such circumstances generally ends in dropsical effusion, into the cavity on which the affected organ is lodged; or in convulsions, or in delirium running into coma; or in death from exhaustion, or from one of the foregoing states; or, more fortunately, in partial subsidence of the original malady and protracted convalescence. Such are the consequences which but too often result, when blood-letting has been looked upon as the only or chief means of cure—the '*sheet anchor*' of treatment, as it has too frequently been called and considered during the last twenty years."—Copland's Dict. Prac. Medicine, vol., 1, page 177.

Professor Morehead says: "Every body has heard of practitioners, with whom, in every case for which they did not know exactly what ought to be done, it was a settled rule of practice to make trial of the lancet.

"So often, likewise, have I heard it said, even of physicians counted eminent in their profession, that, to prevent their patients dying, they bled them to death; and I fear that such charges have foundation in truth."

The following just remarks are from a surgeon in the British Military service. They occur at the close of an able article, in which, by records carefully kept during an army practice for many years, he proves that "blood-letting is unnecessary in any complaint with which he is acquainted." "Though the ill effects of the loss of blood," he says, "unless excessive, are seldom perceivable in youth, yet they rarely fail of being felt before the age of forty-five. People who have been often bled when young, about this period of life begin to be afflicted with chronic pains; they recover very slowly from fits of illness, and are very liable to febrile paroxysms and a variety of other disorders. I have rarely been deceived in my conjectures respecting patients of this description, when I have met them."

In 1853, whilst attending lectures in the different Medical Schools in London, we listened to an able and instructive course of lectures and illustrations on the subject of the blood, its entire chemical, physiological and pathological history, by the celebrated Dr. Paget, at St. Bartholomew's Hospital. These lectures, beautiful and eloquent from beginning to end, were closed by a thrilling appeal to his large class, to never, in any instance, use the lancet in the treatment of disease. He said they might as well take as many ounces of muscle from the arms of their patients with the hope of benefiting them, as blood: Which we interpreted simply to mean, that in a given number of patients from whose arms so many ounces of muscle should be taken, no more harm would be produced than by taking an equal number of ounces of blood.

Many of the foregoing denunciations might apply equally well to cupping and leeching, since they are frequently employed when the patient is too weak to endure loss of blood by venesection.

Too many persons have witnessed the torturing effects of blistering to require, in this place, a word of testimony against a practice at once so cruel and so irrational.

We have room but for the following from Dr. Hillary of London:

"I have long observed that blisters are too frequently, and too often improperly used, as they are now so much in fashion. It is very probable that we have no remedy in all the Materia Medica, that is so frequently, and so often improperly applied, not only in many cases where they cannot possibly give any relief, but too often where they must unavoidably increase the very evil which they are intended to remove or relieve. How often do we see them applied, and sometimes several of them, by pretended dabblers in physic, not only where there are no indications for applying them, but where the true indications are against their application; as in the beginning of most fevers, and especially those of the inflammatory, and of the putrid kind."

Let us examine a few of the agents that rank highest in the Allopathic materia medica. Leaving out of notice Arsenic, Corrosive Sublimate, Hydrocianic Acid, Strychnine, Belladonna, Henbane, Veratrum viride, and the like, we will devote a brief space to the Goliah and the Sampson of Allopathy, Mercury and Opium.

Of the thirty-two preparations of Mercury, we will speak of but two, calomel and blue mass. The former is a proto-chloride of Mercury. From the fact that when corrosive sublimate is taken into the mouth, effects similar to those of ptyalism or salivation

occur,' some writers have inferred that salivation is always produced by the conversion in the system, of calomel or proto-chloride of Mercury into the bi-chloride, or corrosive sublimate. Such a change might readily occur. The hydrochloric acid of the gastric juice, and the common salt used with our food both contain chlorine, thus furnishing an abundant supply for such a chemical change. The fact that in one instance over a hundred grains of calomel may be given with impunity, and that in others a few grains, or even a single grain, may produce the most distressing salivation, would seem to indicate that some chemical change must precede the act of salivation, since all other agents produce an effect nearly proportioned to the quantity taken.

We admit these, however, to be but suggestions. Let us come to positive statements. We quote from a work on Indigestion, by Thomas Graham, former Professor in the University of Glasgow, and member of the Royal College of Surgeons, London:

"There is a circumstance in the operation of mercury, which ought to engage the serious and attentive consideration of the profession, as well as all who are in the habit of taking it themselves, or of giving it to their children. I mean the permanency of its deleterious effects. An improper or excessive use of the generality of medicines is recovered from without difficulty; but it is not so when the same error is committed with the mercurial oxides.—They affect the human constitution in a peculiar manner, taking, so to speak, an iron grasp of all its systems, penetrating even to the bones, by which they not only change the general structure, but greatly impair and destroy its energies. I have seen persons to whom it has been largely given for the removal of different complaints, who, before they took it knew what indigestion and nervous depression meant only by the description of others; but they have since become experimentally acquainted with both, for they now constantly complain of weakness and irritability of the digestive organs, of frequent lowness of spirits and impaired strength; all of which, it appears to me, they will ever be sensible. Instances of this description abound. Many of the victims of the practice are aware of this origin of their permanent indisposition, and many more who are at present unconscious of it, might here find upon investigation a sufficient cause for their sleepless nights and miserable days. We have often every benevolent feeling of the mind called into painful exercise, upon viewing patients already exhausted by protracted illness, groaning under the accumulated miseries of an active course of mercury, and by this for-

ever deprived of perfect restoration. A barbarous practice, the inconsistency, folly, and injury of which no words can sufficiently describe." Pages 136–8.

"When I recall to mind the numerous cases of ruined health from the excessive employment of mercury, that have come to my own knowledge, and reflect on the additional proofs of its ruinous operations which still daily present themselves, I cannot forbear regarding it, as commonly exhibited, as a minute instrument of mighty mischief, which, instead of conveying health and strength to the diseased and enervated, is made to scatter widely the seeds of disease and debility of the worst kind, among persons of every age and condition." Indigestion, page 132.

"There is not in the materia medica another article which so immediately and permanently, and to so great a degree debilitates the stomach and bowels, as calomel; yet this is the medicine which is prescribed and sent for on every occasion. Its action on the nervous system is demonstrative of its being an article inimical to the human constitution; since what medicine besides, in frequent use, excites feelings so horrible and indescribable as calomel, and other preparations of mercury? An excessively peevish, irritable and despondent state of mind, is a well known consequent of a single exhibition of this substance." Ib. page 134.

Dr. Falconer, of Bath, in a paper where he forcibly animadverts on its abuse, observes: "Among other ill effects it tends to produce tumors, paralysis, and not unfrequently incurable mania. I have myself seen repeatedly, from this cause, a kind of approximation to these maladies, that embittered life to such a degree, with shocking depression of spirits and other nervous agitations with which it was accompanied, as to make it more than probable that many of the suicides which disgrace our country, were occasioned by the intolerable feelings which result from such a state of the nervous system."—Trans. Med. Soc. London, vol. 1, page 110.

Prof. J. P. Harrison, in a lecture on the diseases induced by mercury, says, Medical Essays, page 126: "Its vapors salivated a whole ship's crew." Page 128: "Calomel has inflicted more mischief," &c. Page 131: "Calomel even in large doses, has the effect of diminishing vascular action." Page 139: "It produces sore, tumid, and at length ulcerated gums, and a swollen loaded tongue." Page 147: "Mercury in very small quantities, sometimes produces fatal effects." Page 150: "Mercury is often a very potent engine of mischief. An inscrutable peculiarity of consti-

tution renders it a matter of great peril for some persons to take mercury in any shape. The smallest dose of blue pill or calomel, will in such individuals create the most alarming symptoms, and death will sometimes result from taking a few grains of either."—Page 157: "By its rapid, irritating impression on the gastric mucus tissue, or upon the skin, it may act as a poison." Page 161: "I have seen another case in which the child took several doses of calomel, before the mouth became inflamed, and was saved with the loss of nearly all the teeth, of both jaws, and a portion of one cheek." Page 160: "Another child of six years, took six grains of calomel, and lost the whole left cheek, and soon died. Another unfortunate victim of mercury lost a part of his nose and most of the palate of his mouth, and died of pthisis pulmonalis!"

N. Chapman, Prof. of Materia Medica, in the University of Pennsylvania, says: "If you could see, what I almost daily see in my private practice, persons from the south in the very last stage of miserable existence, emaciated to a skeleton, with both plates of the skull almost completely perforated in many places, the nose half gone, with rotten jaws and ulcerated throats, with breaths more pestiferous than the poisonous Bohon Upas, with limbs racked with the pains of the Inquisition, minds as imbecile as the puling babe, a grievous burthen to themselves, and a disgusting spectacle to the world, you would exclaim, as I have often done, 'Oh, the lamentable ignorance which dictates the use (as a medicine) of that noxious drug, calomel.' It is a disgraceful reproach to the profession of medicine—it is quackery—horrid, unwarrantable, murderous quackery. What merit do physicians flatter themselves they possess, by being able to salivate a patient? Cannot the veriest fool in christendom give calomel and salivate? But I will ask another question. Who is there that can stop the career of calomel when once it has taken the reins into its own possession? He who resigns the fate of his patient to calomel, is a vile enemy to the sick, and if he has a tolerable practice, will in a single season lay the foundation of a good business for life; for he will ever afterwards have enough to do to stop the mercurial breaches in the constitutions of his dilapidated patients. He has thrown himself in close contact with death, and will have to fight him at arms length so long as one of his patients maintains a miserable existence."—Therapeutics, vol. 1, page 182.

Mr. Benjamin Bell observes, that besides the usual symptoms of fever, "mercury is apt to excite restlessness, anxiety, general

debility, and a very distressful irritable state of the whole system. The consequences of this effect upon the nerves are different upon different individuals. In some, temporary delirium takes place; in others, palsy or epilepsy supervene; and in many, the memory and judgment are more or less permanently impaired. Instances, too, have occurred, where sudden death has supervened, apparently in consequence of a very trifling exertion or agitation."

We shall here record some of the observations of James Hamilton, M. D., Fellow of the Royal College of Physicians and Professor of Obstetrics in the University of Edinburgh. "Among the numerous poisons which have been used for the cure or alleviation of diseases, there are few which possess more active, and of course more dangerous power, than mercury. Even the most simple and mild forms of that medicine, exert a most extensive influence over the human frame, and many of its chemical preparations are so deleterious, that in the smallest doses they speedily destroy life. When the effects of mercury upon the human system are accurately investigated and duly considered, it cannot fail to appear that infinite injury must accrue from its use in many cases, and that whenever from the nature of the indisposition, violent remedies are not absolutely required, a safe substitute for so hazardous a medicine ought to be found.

"Blood drawn from the arm of the most delicate and debilitated individual, subjected to a course of mercurial medicines, exhibits the same buffy crust with blood drawn from a person laboring under pleurisy.

"There is reason to believe that the inflammatory diathesis induced by mercury may continue for a very considerable length of time after the mercury has been laid aside, and without any manifest signs. When individuals in this state are subjected to accidental exposure to cold, or indulge in irregularity of living, a violent and anomalous indisposition takes place, which is apt to terminate fatally, or to occasion a broken state of health." "Salivation, or an excessive and unusual flow of saliva, in general follows the increased action of the heart and arteries, and is preceded by a certain metallic taste in the mouth, and is attended with a peculiar odor of the breath, different from what is ever perceived in any natural state of disease." "In some cases, besides the ordinary ulceration of the gums, and loosening and final separation of the teeth, the tongue, movable palate, etc., swell and ulcerate to a frightful degree.

"Delicate individuals, especially females, generally experience, after a course of mercury, various modifications of disordered feelings, communicating the idea of imaginary diseases, which unfit them for the duties of life, and render existence a burden.—Among the anomalous complaints arising from this cause, may be enumerated impaired or capricious appetite for food, with all the ordinary symptoms of indigestion, particularly retchings in the morning, and flatulency; disturbed sleep, with frightful dreams; impaired or depraved vision; frequent aches and pains in different parts of the body; occasionally such failure of strength as if just dying, and at other times violent palpitation of the heart, accompanied with difficulty of breathing. Along with all these complaints, there is such a wretchedness of look, with such a disposition to brood over their miserable feelings, that it is extremely difficult to persuade the relations or attendants of the patient that there is no serious indisposition.

"From what has been stated in the preceding pages, respecting the injurious effects of all the preparations of mercury, and especially of calomel, upon some constitutions, and the impossibility of distinguishing those individuals to whom that mineral, in every form is apt to prove noxious, it must be evident that no physician can calculate with any degree of certainty on the safe operation of mercurial purgatives; and no preparation of mercury can be administered without the risk of some consequences ensuing which could neither be intended nor suspected."—Hamilton' pages 105, 106, 107.

Mercury, by the mercury doctors, has been, and still is claimed as a specific against the venereal virus. This is certainly a mistake, for there are many well authenticated cases in which mercury has not only aggravated the symptoms to a frightful degree, but in which loathesome effects similar to those of secondary syphilis have been produced by mercury itself; and we have not the least doubt that in most instances where the virus has been communicated, secondary syphilis would not supervene, were the system free from the mercurial taint. The *effects* of mercury have frequently been developed many years, in some instances twenty years after its administration. Not unfrequently Lobelia, and some other remedies of Medical Reform, as well as the "water cure," will develope all the painful and loathsome consequences of mercury, such as salivation, rheumatic pains, eruptions, syphilitic symptoms, etc., years after the mercury had been taken, the

mercury having been a latent poison in the system, until a sanative treatment brought it out.

Mr. Hunter thus expresses himself in regard to the effect of mercury in gonorrhœa: "I doubt very much of mercury having any specific virtue in this species of the disease; for I find that it is as soon cured without mercury as with it, etc. Men have also been known to contract a gonorrhœa, when loaded with mercury for the cure of lues venerea; the gonorrhœa, nevertheless, has been as difficult of cure as in ordinary cases."—Cooper's Dic., page 428.

"Waiving on my own part all attempts to decide the point, whether the matter of a chancre and that of one species of gonorrhœa are of the same nature, I shall merely content myself with stating that, as far as my observations and inquiries extend, the majority of the best practitioners of the present day consider the exhibition of mercury unnecessary, and consequently improper, in all cases of gonorrhœa. This fact almost amounts to a proof that, if venereal symptoms do ever follow a clap, they are so rare, and I may add, always so imputable to *other causes*, that the employment of mercury as a preventive would, upon the whole, do more injury than benefit to mankind." Ib., page 431.

"In relation to the curative action of mercury in the treatment of lues venerea," he remarks, "The action of mercury, though primary on the nervous system, is communicated to every fibre of the body, and produces a degree of restlessness, anxiety and debility. * * * Indeed, it seems to be well established, that where salivation is early excited by a too free use of mercury, our chances of a prompt and efficacious cure are actually lessened, and sometimes entirely cut off. Accordingly, the preposterous practice of Mr. Howard, and of the older writers, who advocate profuse salivation long continued, and say that the humors ought to 'flow like a river,' will find few or no advocates in the present enlightened state of knowledge." Ib., page 462.

Remarks by R. Carmichael, Esq., of Dublin: "In the phagedenic form of venereal disease, I may safely say that I have almost always found sooner or later, the exhibition of mercury proved to be injurious. For primary ulcers invariably so, and the same may be observed, while the eruption continues to present the form of rupia or tubercles. * * * I have found mercury in every stage of the phagedenic venereal disease to be a most deceitful and destructive drug; for although symptoms may amend for a brief period under its use, and flatter both patient and prac-

titioner that a speedy cure is at hand, yet almost to a certainty new symptoms will arise to disappoint these sanguine expectations.

"With regard to the certainty of cure, as far as the mercurial treatment is concerned, we must say with many of our unprejudiced colleagues, that we are convinced by bitter experience that syphilis very often returned in the secondary form after the most cautious use of mercury, the most careful selection of the preparation, the strictest attention to diet, and a proper observation of precautionary measures."

Allopathy claims, too, that in diseases of the liver, mercury and its preparations are superior to all other remedies. For ourself we are simply satisfied that in all such cases where relief is experienced by the use of mercurials, and those who have tested it know that in all instances the relief is only temporary—the aggravated symptoms *invariably* returning—such relief is alone the result of an *irritation* of the liver, by which it is goaded, as it were, to discharge its contents, but that it is always left in a state less able to perform its normal functions. What is apparently gained has been at the expense of the vital powers, leaving a morbid impression which will surely, sooner or later, develope itself. But we have higher authority on this point:

"I have seen the constitutions of such persons [who were supposed to have the liver complaint] irrecoverably ruined by active mercurial courses; but *in no instance* did I ever witness a cure effected by this treatment. It is painful to recollect that, in disorganized livers, mercury, carried to the extent of salivation, is commonly regarded as the sheet anchor, the fit and only remedy; for I will venture to affirm, that the far greater number of such cases grow materially worse, rather than better, by such use of it; and that this aggravation consists not merely in an increase of the patient's weakness and morbid irritability, but that the existing disease in the liver becomes more extensive and inveterate."—Graham's Indigestion, page 172.

"If the opinions here set forth with so much force be correct—and that they are so we have not the least doubt—what incalculable mischief must result from a practice founded upon the common notion of the absolute necessity of a mercurial salivation, for the cure of what may be properly or improperly named liver complaint!" [Note by the American Editor.]—Ib., page 137.

Abernethy says: "Persons who are salivated, have, as far as I have remarked, the functions of the liver and the digestive organs

constantly disturbed by that process."—Surgical Observations, page 77.

Blackall says: "On the schirrus or tuberculated state of the liver, I have seldom seen mercury make any [good] impression. But I have seen the mercurial habit superadded by continual salivation, and then the disorder become more complicated and more speedily fatal."—Dropsies, page 70.

Farre says: "Patients suffering under chronic enlargements of the liver, are not, so far as I have observed, benefited by the operation of mercury; for, by the time that the most careful examination can distinguish them, the progress of the disease has been already so considerable, that the mercurial action tends only to exhaust the power that art will, subsequently, in vain attempt to restore."—Morb. Anat. Liver, page 21.

Hamilton says: "The ordinary mode of exhibiting mercury, for the cure of chronic hepatitis, not unfrequently hurries on the disease, or, by impairing the constitution, lays the foundation for paralytic affections; and it may be truly affirmed that it thus often shortens life."—Abuse of Mercury, page 79.

Mercury, in any form, once taken into the system, may riot there for life, producing samples of all "the ills that flesh is heir to," and not the physician's skill, nor aught in the power of the patient can stay its ravages until death shall relieve him from his sufferings. In the entire range of medical practice, none is so uncertain, none so much at random, as the use of mercurials. The most learned and skillful can never predict their consequences. Of this we have the most distinguished authority.

"Some patients are slow to show ptyalism, even under great and sustained doses. Others have their mouths touched, perhaps severely, with but a few grains. Some suffer from pain and purging, in whatever form the mercury is given, internally. Some are actually poisoned by the mineral, the condition termed *erythismus* being induced. The system may not suffer, but the surface may —a very troublesome eruption occurring, the eczema mercuriale. Some systems evince their intolerance of the remedy by gradual loss of flesh, strength and spirits, an asthenic state, approaching to hectic, becoming established. Violent salivation may be caused by sudden exposure to cold during the use of the medicine, or it may depend upon an idiosyncracy of the system."—Practice of Surgery, by James Miller, pages 390–91.

"It is important to know that different persons admit of, or resist, the specific agency of mercury in very different degrees;

so that, in some patients, the remedy becomes unmanageable and hazardous; while, in others, it is inert and useless. It is most grievously disappointing to watch a patient laboring under inflammation which is likely to spoil some important organ, and to find, after bleeding has been pushed as far as we dare push it, that no impression is made upon his gums by the freest use of mercury. Such cases are not uncommon; and, unfortunately, they seem most apt to occur when the controlling agency of mercury is most urgently required. On the other hand, there are persons in whom very small quantities of mercury act as a violent poison, a single dose producing the severest salivation, and bringing the patient's existence into jeopardy."—Watson's Practice, page 157.

"Mercury, in any form, excites in some individuals, and more particularly in those in whom salivation is not easily produced, a frightful degree of erethism, with most alarming depression of the vital powers. We have seen a complete but temporary loss of sight, accompanied by various evidences of undue determination of blood to the head, supervene upon the occurrence of a violent salivation, induced by the application of camphorated mercurial ointment, for a few days, to an enlarged testis."—Library Practical Medicine, vol. v, page 411.

The secondary effects of the poison are manifested in "caries of the skull; ozena; *noli me tangere;* caries and necrosis of the lower jaw; inflammation of the tongue."—Miller's Practice of Surgery, page 64.

"Of the remote evil effects of mercury on the system, much might be said."—Ib., page 391.

"In all aggravated cases of periostitis, mercury is usually much to blame. No predisposing cause of ostitis is found more frequent or certain in its operation than mercury. The cachectic state induced by the mercurial poison seems manifestly to favor the occurrence of fragilitas ossium.—Ib., page 230.

Dr. Bell, when referring to the treatment of mercurial salivation, says: "Like all kinds of poisoning, of which this is one, time is required, both for an elimination of the deleterious agent from the system, and for a subsidence of the morbid phenomena, such as depraved secretions and perverted innervation to which it gives rise."—Bell & Stokes' Practice, vol. 1, p. 69.

"In producing their effects, all the mercurial preparations are decomposed, and the mercury in the metallic form is either thrown out of the body by the skin and lungs, or deposited in the glands and the bones.

"In Hufeland's Journal, it is stated that a pelvis infiltrated with mercury, was taken from a young woman who died of syphilis, and is preserved in the Dublin Museum of Midwifery."—Ib. Note. [Dr. Blundell, of London, has another.] "In this place we can only contemplate mercury as a source of disease."—Good's St. Med., vol. 1, page 64.

Hiram Cox, M. D., a graduate of the Ohio Medical College, and late Professor in one of the Cincinnati Medical Colleges, says: "Thousands yearly fill a premature grave, who are *literally* and *legally murdered* by the reckless administration of *mercury;* yet that same routine species of murder is continued and the community sanction it.

"I have been called in hundreds of instances to counteract cases of poison produced by men, to many of whose names, by some means or other, the initials M. D. were attached," etc.—"Thousands have gone to the grave," etc. "I could enumerate at least fifty cases of poison and death by calomel, that occurred in the practice of physicians who were practicing in the region of country in which I practiced for seven years, many of whom were sent to their graves, mutilated, disfigured and partially decomposed, before death released them from their sufferings. Suppose each physician of the thousands who are practicing in the United States, after the Old School routine of giving *calomel*, were to hand in a list of deaths produced by that *mineral poison* that occurred within his knowledge and region of labor, what a stupendous amount of mortality it would make!" "How revolting to humanity is this picture! and yet how listlessly does this community move on and permit this state of things to exist!"

Did the consequences of mercurialization stop with the individual, their contemplation were less melancholy; but we have many instances in which the most serious effects have been developed in the offspring of parents suffering from the ravages of mercury, such as want of palate, necrosis of the bones, eruptions, emaciation and general debility. Prof. J. B. Flint, of Louisville, Kentucky, in a note to his edition of Druitt's Surgery, page 114, says:

"Moreover, the evil does not stop with the individual—for where important elementary tissues are so deteriorated in the parents, a constitutional infirmity will be impressed on the offspring, which, if it may not be called scrofulous from birth, is the most favorable condition possible for the development of the phenomena

of that diathesis, whenever co-operative influences shall assail the unfortunate subject.

"The interests of humanity, no less than the honor of medicine, demand that those who observe and understand these things should utter, on all proper occasions, the most unqualified protestations against such abuses of a medicinal agent."

But we will no longer tax the patience of the reader with these disgusting details. A volume of respectable size might be filled with similar extracts from Allopathic writers of the highest authority, but we forbear.

We now devote a brief space to Opium and its various preparations. Although the mere relief of pain may in many instances be desirable, yet regarding it merely as an adjunct to disease, a kindly monitor of nature to warn us of the presence of a morbid condition, it were evidently far better to remove the disease, the cause of the pain, than merely to allay the pain without in the least relieving the morbid condition. Nay, more; when such alleviation of pain is necessarily followed by a depression of vitality, by an increased inability of the system to combat the disease, the conscientious and manly physician will direct his efforts to a *removal of the disease*, rather than an alleviation of the pain, though the latter may gain him more credit with his patient, or prolong his treatment and increase his fees.

Opium, Laudanum, Morphine, etc., depress the powers of the brain and nervous system, thereby diminishing their capacity *to perceive the pain*, though the disease, and in reality the cause of the pain, are not in the least abated. A person in a state of coma, from whatever cause, is unconscious of pain, yet coma has no tendency to remove disease. So far as the actual cure of the disease is concerned, as well might insensibility to the pain be produced by a blow upon the head, as by any narcotic whatever. Nor would the blow, unless fatal, prove more injurious, or as much so as the narcotic. But we again appeal to high authority.

"Opium, in all its modifications, aggravates the morbid habit more than alcohol, or any other of the higher stimulants. The popular composition vulgularly called Dover's Powder, is used extensively on the supposition, or pretence of the hurtful effects of the opium being altered, or neutralized by its other ingredients. There is no modification of opium that alters its effects when given in a competent dose to affect the system. The black drop, the morphia, have very nearly if not entirely the same effects in stimulating the general system, in an adequate dose to ease pain, that

the extract of opium has. These pretences are erroneous and delusive; for we have seen the latter as certainly fatal as the tiente upas, if not quite so speedily. It is probable, that for forty years past, opium, and its preparations, have done seven times the injury than rendered benefit, on the great scale of the civilized world."—Gallup's Institutes of Medicine, page 187.

"The false thesis of spasm, has led to very disastrous results in the treatment of pertussis. It has inducted into its service not only the most stimulating of the antispasmodics, but that most destructive of all narcotics, opium in some form. Whilst all the phenomena of the general habit and local inflammation show a fixed and persistive phlogistic state, this most incongruous of all stimulants is brought forth to insure destruction, and on the pretence of its being antispasmodic. The pathological error was conceived in darkness, and the remedy brought forth in ignorance. Were the subject less important, we might he spared the pain of the above remarks. But, in consequence of an erroneous principle, the young sufferers in this disease are literally fed with Dover's powder, black drop, morphia, paregoric, and the tribes of pedlar's cough drops. We are not content to speak through pages which may never reach the public eye, but wish for a lengthened trumpet, that might tingle the ears of empirics and charlatans, in every avenue of their retreat."—Ib., vol. 2, page 298.

"The same remarks already made in relation to the use of narcotics in the acute morbid habit, will apply in the chronic, and in an especial manner as relates to pthisis. We insist that no progress can be made in the removal of the disease whilst narcotics are used in any form. We impute the failures of those who have attempted the treatment of pthisis on some just principles in a great measure, to the use of these deleterious agents, so freely intermingled with almost every other remedy. In part, however, in not having just views of the character of the disease. We have, on several occasions, shown the illusions which have led to their use; and we now merely notice that they are the highest stimulants ever introduced into the materia medica. They retard the exhalations, absorptions and secretions; render the tissues dry; afford a delusive truce to painful sensations, by diminishing the sensibility of external relation, and ultimately aggravate every phenomena. They co-operate with the remote and proximate causes of pthisis, and serve to fix the primary changes in the inmost tissues more permanently, and render them more difficult of removal. Internal engorgements, or infractions, are increased by

their use, even in small doses, and every post mortem examination in subjects destroyed by narcotics, shows a violent state of congestion in the internal tissues of the head, thorax, and abdomen, similar to those produced in the internal tissues in the most malignant fevers. * * * Many are more mistaken in this respect than the deluded dram drinker is in conceiving that another alcoholic draught will surely do him good. Their soothing influences are quite as brief, and their sequences more suddenly pernicious. We freely declare, if compelled to use laudanum, Dover's powder, opiate cordials, or cough drops, etc., we would never attempt a radical cure of pthisis pulmonalis in any of its varieties. In the last stage of a forlorn case, they are more justifiable, in small doses; and yet a previous well conducted case will hardly need them, as the calm composure of the downward way is commonly disturbed by their use. In their omission, there is no running the risk of exciting a repulsive delirium, or forbidding lethargy."—Ib., vol. 2, page 284.

"The practice of using opium in the treatment of low, continued and typhus fevers, ought to be deprecated. It is rare that a single moderate dose can be given without ulterior injury, although the present composure may seem to justify it. No article is so liable to pass an imposition on the empirical attendant, the patient and friends as this. The severity of the disease is smothered by the tranquility it produces; but it will resume its authority as soon as the sedative ceases, with more violence. The temptation is urgent for its repetition, and if done, the patient progresses into a still worse condition. The pretence held out by some is untenable, that any combination of other articles, as in Dover's powders, can neutralize and render innoxious the effects of the opium in its composition. Neither can the pure acetate of morphia be trusted in such cases with impunity, nor belladonna, stramonium, etc.—There is a morbid habit existing in these instances, and a state of nosodynamia, which is aggravated by the stimulations of the narcotics."—Ib., vol. 1, page 379.

"By way of recapitulation, we may notice, that the whole tribe of narcotics present allurements to the unwary, with all the suavity and meekness of the serpent of Eden, and the deception is too often equally as fatal. Behold the end and avoid the consequences."—Ib., vol. 1, page 380.

Eberle on Children, page 199, calls opium "a treacherous palliative, under the use of which the appetite and digestive powers fail, the body emaciates, and the skin becomes sallow, dingy

and shrivelled, the countenance acquires an expression of languor and suffering, and a general state of apathy, inactivity and feebleness ensues, which ultimately often leads to convulsions, dropsy in the head, glandular induration, incurable jaundice, or fatal exhaustion of the vital energies. All the soothing mixtures, such as Godfrey's cordial, Dalmy's carminative, so much employed for allaying the colic pains of infants, contain more or less opium; and innumerable infants have been irretrievably ruined by these popular nostrums."

Dr. Johnson says, "The whole tribe of narcotics, as opium, hyoscyamus, hop and laurel water, or prussic acid, are dangerous sedatives, presenting allurements to the unwary, with all the suavity and meekness of the serpent of Eden, and the deception too often is equally fatal."

"A very small portion of opium will sometimes produce convulsions in a very young patient. We have known the half of a grain of Dover's powder, which is but the twentieth part of a grain of opium, induce fits in a delicate child of a few days old. Christison relates several interesting examples of death in children from small portions of opium. An infant three days old, got by mistake, about the fourth part of a mixture containing ten drops of laudanum. The child died in twenty-four hours. The administration of three drops of Laudanum to a stout child fourteen months old, was followed by convulsions, and death in six hours. Another child of nine months died in nine hours after taking four drops. The pernicious custom which many nurses pursue, of giving infants laudanum, or paregoric, to still their cries at night, cannot be too severely reprehended. This practice is fraught with evil results to the infant, and should never be permitted."—Harrison's Therapeutics.

"Paregoric, Bateman's drops, laudanum or toddy, *lays* the foundation for head complaints, such as inflammations, convulsions, and dropsy of the brain. A small dose of paregoric will often induce fits. The intellect of a child will be impaired by it, although years may elapse after the practice is abandoned. A permanent, ill conditioned state of the nervous system is induced by the repeated giving of opiates to infants, that *never, through all subsequent life*, is entirely got rid of by the most strenuous endeavors. A tendency, we doubt not, to insanity, is thus engendered. Such children pass through the process of teething badly. The stamina of the constitution is weakened by it. The stomach and bowels *lose their tone*, and cholera infantum, or summer com-

plaint, is more apt to fasten on them."—Harrison's Therapeutics, page 182.

In many of the most respectable writers, a large number of diseases, in some as many at thirty, are enumerated as being caused by the use of the popular Allopathic medicaments, or correctly speaking, poisons.

The following table is compiled from Eberle's Practice:

Disease.	*Cause.*	*Cure.*
Tonsilitis,	Arsenic, Mercury	Bleeding, Calomel, Opium.
Enteritis,	Drastic purgatives	Do. do. do
Peritonitis,	Injuries in parturition	Do. do. do
Hepatitis,	Mercury	Do. do. do
Cerebutis,	Do.	Do. do. do
Nephritis,	Cantharides	Do. do. do
Cystitis,	Do.	Do. do. do
Hysteritis,	Instrumental labor.	Do. do. do
Rheumatism,	Mercury	Do. do. do
Gout,	Do.	Do. do. do
Ophthalmia,	Do.	Do. do. do
Ezcema,	Do.	do. do
Hematemesis,	Cantharides.	Do. do. do
Hematuria,	Do.	Do. do. do
Paralysis,	Lead, Mercury	Do. do. do
Cholera.	Mercury, Stramonium.	Do. do. do
Dementia,	Do.	Do. do. do
Colica Pictonum,	Lead	Do. do. do
Jaundice,	Mercury	Do. do. do
Diabetes.,	Do. Alcoholic Liquors	Do. do. do
Dysuria,	Cantharides.	do. do
Hydrothorax,	Mercury	Do. do. do
Ascites,	Do.	Do. do. do
Anasarca,	Do.	Do. do. do

Prof. J. B. Flint, in the note in Druitt's Surgery alluded to above, says:

"Genuine tuberculous scrofula is less common in the valley of the Mississippi than on the eastern coast of the Union. But a very large portion of what is regarded and treated as scrofulous disease, in this part of the country, appears to me to be merely the result of indiscreet mercurialization. Under the prevalent idea that biliary derangements either constitute or co-exist with every departure from health, some form of mercury is administered in almost every prescription, and the whole capillary system of persons who happen to be occasionally unwell, soon becomes impregnated and poisoned by this subtile mineral.

"So, too, if an alterative impression is desired, under any morbid condition whatever, instead of employing regimen, diet and

more harmless medicaments, it is common to resort indiscriminately to mercurial agents. The consequences of such reckless medication present themselves to the physician in dyspeptic affections, chronic headaches, pains in the limbs, *called* rheumatism, &c.; and to the surgeon in the more striking forms of alveolar absorptions and adhesions, inveterate ulcerations of the fauces and nostrils, where no specific taint has been suspected, and in various degenerations, malignant or semi-malignant, of glandular organs."

But we are almost alarmed at the accumulation of our extracts, though we have given only a fractional part of what we have at command. Those in the chapter immediately previous show, upon the ablest authority, that the *fundamental principles*, or rather the fundamental hypotheses of Allopathy, are delusive, false, and contradictory. Those of the present chapter clearly exhibit the fatal tendencies of those agents which they administer in almost every form of disease. Is it not a marvel, that men will continue to administer, and patients to swallow such violent poisons, when it must be evident to the former, at least, and in the sequel, painfully and often fatally so to the latter, that their use must be followed by the most deleterious effects. Is it ignorance on the part of the practitioner, or a recklessness of human life, that deserves the eternal reprobation of every honest man?

We are aware that it is claimed by those who employ these deadly means in the treatment of disease, that if they are thus fatal in the hands of "empirics," "quacks," "charlatans," etc., etc., when administered *scientifically*, they are quite harmless.—Without stopping to inquire whether a certain number of grains of calomel, so many drops of hydrocyanic acid, or so large a blister would not be equally deleterious, painful, or fatal, given by one person or another, we cannot but assure ourself, that *whatever harm* such agents are justly chargeable with, must be altogether from their exhibition at the hands of those same *scientific* gentlemen; for we know of no other class of men reckless enough to administer them.

In view of this *expose* of Old Physic, the question naturally arises, is there any thing preferable to it? We reply, yes, many things. No medicine is infinitely preferable. Homeopathy, Hydropathy, bread pills and colored water, any thing but poisons and torture, are preferable.

CHAPTER IX.

Source of Error in the Old System of Medicine—Empiricism—Cause of its Decline—Its Establishment—Renouard's Reasoning—Medical Reform—SAMUEL THOMSON, *its Originator*—His Early Predilections—Nature's Designs—Failures of Allopathy—Treatment in His Own Family—LOBELIA—Animal Heat—Elements of Philosophy—Cause of Heat—Its Dynamical Power—Animal Life—Fever—Its Rational Philosophy—Thomson's Therapeia—The Vapor Bath—Lobelia Emetic—Persecutions of Thomson—Letters of Dr. Benjamin Waterhouse.

Having exhibited some of the fatal errors, the dangerous tendencies, and the destructive agents of the Old System of Medicine, it becomes us to inquire if there may be found a better system; one in which *safety*, *certainty* and *promptness* in the relief of the sick, and the cure of disease, are prominent and reliable features. We have before intimated, that what is called *rational medicine*, that is, an attempt on the part of physicians, from a knowledge of the physio-pathological conditions of a particular disease, and of the properties of certain agents, to determine *a priori*, a cure, or the best treatment for that disease, has been the most prolific source of error in that system of medicine.

We shall now attempt, by a process of reasoning, and by good authority, to show that no system of medication, that no therapeutic agent, can be of any value only so far as that value has been *demonstrated by experience; or empirically*. We know well that the term empiricism has become a by-word, and a reproach: We know the boasts and the vanity of "rational medicine;" yet truth is dearer to us than the favor of men, and we shrink not from the endeavor to place them both in their true light. Fortunately, in this task, we are not left alone. We shall rely upon abler minds.

Anciently, and until the decline of Galenism in the middle ages, Empiricism was the acknowledged and prevailing system of medicine. Its decline may be traced to the opposition that existed between it and the then prevailing theories of philosophy. The

doctrine of *innate ideas*, leading the mind beyond *sensible phenomena* has been of immense mischief in medicine. Formerly the study of philosophy consisted in the discussion of principles and theories, attempting thereby, and by the *authority* of Aristotle and others to establish *facts*. This was evidently reversing the order of nature. Facts must first be determined, and upon these, principles and hypotheses may be based. So in medicine, no agent, or medicament, can be of any value, unless by an experiment, the *fact* of its curative properties has been determined. The more frequently and uniformly, in analogous cases, a particular medicine or mode of treatment has been found to remove disease, the more reliable is the fact of its therapeutic value.

We cannot better establish the superiority of Empiricism, than by some passages from Renouard, one of the ablest and most philosophical writers of the age.

"In the succession of natural phenomena," he says: "There is nothing which presents the idea of casuality, or the necessary connection of cause and effect. But, when a succession of phenomena is constant, the human mind, which observes it assiduously, and which often may foresee it, is forced to believe that these phenomena succeed each other because they are linked together. A ball, for example, thrown on a horizontal plane, strikes another ball which was in a state of repose; this latter moves immediately in its turn. The impulse of the first will be regarded as the cause of the movement of the second; however, the mind does not perceive any necessary connection between these two phenomena, but their constant succession, which is manifested each time that we seek the proof, forces us to believe that these phenomena follow because they are connected. *This is an empirical truth and certainty.*

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"Knowing the series of phenomena which constitute a morbid affection, can we deduce from it, a *priori*, the knowledge of the successive effects which will result from the intervention of a new force (a therapeutic agent) in the midst of this phenomena? No, we say no, it is not possible that the knowledge of a succession of morbid phenemena can enable us to foresee the change which a curative agent will introduce into such succession, before these changes may have been observed at least once.

"The lights of pathological philosophy, to whatever degree they may have attained, can never give us the foresight of the effect a therapeutic agent must produce in the animal economy, be-

fore these effects have been directly observed. From which it follows that the indications which flow from physio-pathological knowledge on the opportunity of a treatment, are reduced to simple conjectures, before that treatment has been tried once at least. It is not until after a first trial that the veritable foresight, or in other words, science begins. *Thus the physio-pathology cannot be in any case the direct and immediate foundation of therapeutics.*

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"Read most of the treatises on medicine which have been published in the last century, and you will find but few in which we cannot distinguish two kinds of therapeutics.

"One they call rational, founded on the physio-pathological ideas of the day; the other, they name empirical, or irrational, founded on the common observation of the effects of remedies.—The writers who establish such a distinction, announce thereby that the choice of a remedy is, in their eyes not sufficiently justified by the experimental notion of its efficacy; and a treatment merits the title of rational only in proportion as it can be shown in virtue of what physiological modification it effects a cure. In a word, it is the knowledge of the intimate modification produced by the curative agents which constitutes, according to these authors, the rationality of therapeutics, the supreme perfection of the Art.

"One of our cotemporaries, M. Requin, whose opinions are distinguished by clearness and exactness, expresses himself in the following language on this subject: '*Medicine is rational* whenever it bases the employment of any remedies on the consideration of their physiological effects. The indications of these remedies are found by a process of reasoning in which the physiological effects are the principles, and the therapeutic effects the conclusion. There is a logical connection between the latter and the former.'

Second. "'Medicine is *empirical*, not in the bad sense of the word, but in all the dignity of its etymological sense, whenever the remedies it prescribes have for reason, not a physiological deduction or induction, but clinical experience only. Without doubt, physicians may seek, when the utility of an empirical remedy is well observed, to explain it by physiological theories more or less plausible, as on the other hand they seek to demonstrate by the evidence of experience, the value of rational remedies; for reasoning and experience ought naturally to tend to unite themselves in the precepts of the Art. But, in a last analysis the distinction of the-

rapeutical remedies into rational and empirical is always fundamentally true.

"'But how will the practitioner reply, for example, when he is asked, on the one hand, why he purges a man who is constipated, and on the other hand, why he purges a man attacked with lead colic? To the first question he will reply, *rationally*, I purge to evacuate the fecal matter. To the second question he will reply, *empirically*, I purge because purgation cures lead colic.'

"Such is the argument which I extract literally from a treatise on Medicine which is now being published.

"For myself, the more I examine and compare the two answers quoted in the last passage, the more I find them identical, that is to say, equally rational and equally empirical. Indeed, when a person answers, I purge in order to evacuate fecal matter, is it not equivalent to saying, I admininister such a remedy because experience has taught me that it relieves constipation? And again, when one answers: I purge to cure lead colic, does he not say as much as, I administer such a remedy because experience has taught me that it cures lead colic?

"In the first case, as in the second, you have nothing else but an experimental notion of the therapeutical effect. How do you know, for example, that the powder of jalap will provoke the evacuation of fecal matter? By clinical observation. How do you know that the same substance will quiet lead colic? Equally by clinical observation. Why then do you call the knowledge of the first effect *rational*, and that of the second *empirical?* To this you cannot answer by subtilties and the quibbles of the sophist; or rather, your enlightened reason, directed by the philosophic axioms above given, will force you to agree that you have established an erroneous distinction between facts of the same order.

"Let us see other examples of pretended rational Medicine. Perhaps they will sustain an examination better than the preceding: 'In clinical surgery,' says the honorable M. Bouillaud, 'cases are not rare where rational therapeutics is employed. Indeed, to reduce a luxated bone by bringing into play muscular action in an inverse direction to that which produced it; to extract, either by a bloody operation or by lithotrity, a stone from the bladder; to dilate strictured canals or to make a substitute for them by artificial means; to ligate a wounded artery, etc., etc., these are purely rational therapeutical proceedings.'

"In order to judge in what respect the last examples which we have cited merit the title of rational, I beg the reader to remem-

ber the corillary of our philosophical axioms. It is as follows: 'A ball thrown on a horizontal plane, strikes another ball which is in repose; this latter moves immediately. The impulse of the first will be regarded as the cause of the movement of the second.—However, the mind does not perceive any necessary connection between the two phenomena; but their constant succession, which manifests itself every time that we renew the experiment, leads us to believe that these phenomena succeed each other because they are linked together. *This is empirical knowledge and certainty.*' Well then, I again ask, what difference is there between the proceeding of the player who moves one ball by the other, and that of the surgeon who reduces a luxated bone by bringing into play the muscular forces, in an inverse direction to that of the forces which produced the luxation? Absolutely none. The processes are the same, and the certainty exists in the same degree. But remember the fright of Ambrose Pare, during an entire night, when he had ligated an artery for the first time in order to arrest hemorrhage after an amputation, and then tell me if this proceeding, which appears to us to-day so rational, was judged so then by that celebrated surgeon?

"We conclude from this, that the surgeon who reduces a luxation or ligates an artery, conformably to the rules of his art, does not act with more reason than the physician who administers a suitable dose of sulphate of quinine to a person attacked with intermittent fever, or he who vaccinates a child to protect it from small pox. The actions of both are based upon a perfectly rational methodical Empiricism. If so many men imagine that they perceive with spiritual eyes, or seize mentally the logical connection which unites the act of the surgeon with the effect which results from it, while they avow that they cannot perceive any rational connection between the act of the physician and its result, it is because in the first case they are deluded; they are dupes of that faculty of the human understanding which Mallebranche called *folle du logis* (imagination.)

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"Hence we conclude that physicians who hope to found their curative indications on physio-pathological facts are deceived by illusions of their imagination. There is no connection perceptible to our mind between the idea of a disease, however complete it may be supposed, and the determination of the curative agent applied to this disease. In other words, the series of phenomena which constitute a pathological state, cannot in any way enable us

to foresee the succession of effects which will result from the employment of this or that mode of treatment, before its effects have been observed at least once. Finally, there exists between physiology and therapeutics a solution of continuity, a *hiatus* which the human mind can overleap only by the aid of clinical experience, or in other words, by empiricism.

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"Empiricism is the most profoundly elaborated system which has ever appeared in medicine, and merits the most to be studied with care; it is the one whose contemplation promises to the philosophic mind the most useful and fruitful results, and can serve best in the research of proper methods to satisfy the future progress of the science.

"We have now arrived, basing all we have said on philosophic axioms universally admitted, to the demonstration, henceforth immovable, of this great truth: Neither physiology nor pathology, whatever development they may acquire, can ever serve as a primary and immediate foundation for therapeutics. There is, and there always will be, between the knowledge of a disease and the determination of the appropriate treatment, an interval, a void, which the human mind can fill but by the aid of experiment.

"By this demonstration we have set aside, not only all the systems of Medicine known until the present time, which are derived from some physio-pathological idea, but all those also, which any one can be tempted in the future to extract from the same source.

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"It is finally necessary to prove that Empiri-methodism is the only one of all the systems of medicine which resolves in a satisfactory manner, this great problem, declared insoluble even in our times, by men of high reputation: '*The harmony of science with art—theory with practice.*'

"Thus you see, that according to the system of rational Empiricism, or Empiri-methodism, as I have exhibited it, the practice of medicine is scientifically constituted, without any support from physio-pathological theories; the *Art* of curing no longer offers the strange anomaly of processes called *rational*, whose efficacy is more than doubtful, by the side of others called *non*-rational, whose efficacy is perfectly established; the practitioner is no longer reduced to the necessity of making the humiliating avowal, that he can never cure better than when he treats a patient without knowing why. I might therefore limit here my task, and leave to others the care of developing the principles which I have estab-

lished; to follow their application through all the branches of medical science, and to show how these principles govern, in all their details. But there are still some clouds to be removed, some objections that must be resolved, concerning the ensemble of the empiri-methodic doctrine, and in answering these I shall terminate my remarks on this subject."*

If the reasoning of Renouard be conclusive, and who can doubt it, we must find a system of medicine based upon experiment before we can give it our sanction. Fortunately, such a system is at hand. The Reform system, in its origin and progress, answers all the conditions of a methodic Empiricism. Its truths have all been established by well conducted experiments, and its philosophy is the resultant of those truths. To an elucidation of the prominent points in the history of that system will the remaining pages of this essay be mostly devoted.

We cannot, perhaps, better introduce the history of Medical Reform than by giving a sketch of the life and doctrines of Samuel Thomson, who is its acknowledged author or founder. Since his time, the system has been greatly refined and improved, but it were injustice to deny him the honor of having originated it.—Samuel Thomson was a great man, one of Nature's own favorites, though fortune had denied him the advantages which so often enable the man of limited capacity to appear great. The time, we believe, is not distant, when he will rank with Franklin, Fulton, Arkwright and Morse. As Napoleon, a boy at Brienne, by his mimic fortifications, his miniature ordinance, and his school-boy troops, foreshadowed the hero and the conqueror, so Samuel Thomson, from his very babyhood, by examining, tasting and investigating the properties of plants, showed as clearly that Nature had fitted him for the vocation in which she afterwards installed him. Prejudiced witnesses might testify against them both. English biographers and historians would make Napoleon but a tyrant and a usurper, as Allopathic chroniclers would write Samuel Thomson a charletan or a quack.

He was born February 9th, 1760, in the township of Alsted, Cheshire County, New Hampshire. His father was very poor, living in a wilderness country. At the age of between three and four years, he commenced examining and learning the names of plants, and as far as he was able, inquiring their medicinal properties. In the summer, after he was four years old, whilst in the

* Renouard's "History of Medicine," page 637, et seq.

fields, his attention was attracted to a singular looking plant. On chewing it, he found something peculiar in its taste, and effects. This was the Lobelia. He was afterwards in the habit of amusing himself by inducing his play-fellows to taste it, it sometimes producing emesis. His passion for studying plants, and learning their properties, at one time, determined his father to place him with a Dr. Fuller, known as a root doctor, but as he had enjoyed the advantages of but one month's schooling, the project was abandoned. Yet his ardor in the study of plants never abated. No opportunity was lost for gaining information from every possible source. Witnessing the cruel treatment and the constant failures of the "Regular Doctors," his desire to relieve his fellows from their sufferings increased with his growth. Yet he was ignorant, poor, and friendless, and he could only stand a silent spectator of what was transpiring around him.

At the age of twenty-one he was married, when some of the scenes he had witnessed in other families, commenced in his own. At the birth of his first child, his wife was seriously ill, and not expected to live. She had six regular physicians, and the seventh had been sent for. After disagreeing amongst themselves, and contradicting each other, they pronounced her case hopeless, declaring that she must die. Dismissing them, he sent for two Doctors of the neighborhood, who were called root doctors. Under their treatment she soon recovered. Thus having lost all confidence in *regular* medicine, and having much sickness in his own family, year after year, during the birth and raising of eight children, he was gradually led, or rather forced, to resort to such treatment, as, from his knowledge of the properties of plants, he thought might prove beneficial in the different cases he was called to treat.

We will here mention a circumstance which first directed his attention to the therapeutic properties of Lobelia. This occurred one or two years after his marriage. Whilst mowing one day in the meadow with some men, he gave one of them some of the Lobelia plant to eat. It made him pale and deathly sick, producing the most profuse perspiration. Thomson advised him to go to a spring near by and drink some water; he started, but being unable to get over the stone wall, he lay down on the ground, where he vomited freely and profusely. He soon returned to the house, ate a hearty dinner, completed his day's labor, and from that time enjoyed better health than he had done for years before, declaring that nothing he had ever taken in his life did him as much good as

the Lobelia. This led to the first use of Lobelia as a medicine, and the world knows, or will know the result.

Treating many cases in his own family, some of them of a most malignant character, and always with success, the attention of his neighbors was directed to his practice. His materia medica, and his medical means constantly increased. Did our space permit, it would be exceedingly interesting to enter into the details, through which, step by step, he elaborated a medical philosophy, and worked out a system of medical practice which is destined to revolutionize the entire medical world. But we must content ourself with a brief sketch.

Early in his investigations, his attention was directed to the subject of animal heat, the manner of its production, and the part it plays in the animal econmoy both in health and disease. And his views though crudely expressed, contain the elements of the first rational explanation of this important subject—elements which constitute the basis of the chemico-physiological doctrines of Liebig, Carpenter, Lehman and Jackson. And, although some of these men are now contending for the honor of priority in the discovery, Samuel Thomson taught the essential elements of the same doctrines before they were born. To him, and to him alone, is due the honor of the discovery that heat in the animal body is generated by the consumption or combustion of the food taken into the stomach; the latter, in his crude analogies, being likened to the fire-place, and the food to the fuel, by which the heat is generated and sustained He says :

"When food is taken and masticated and taken into the stomach, the process of digestion commences. By the warmth and action of the organs of digestion, and the gastric juices, the food is decomposed or consumed like fuel consuming in a fire. The breath and perspirable vapor, are the smoke arising from this fire. The fœcal matter of dejections as the ashes or earthy substance remaining after the consumption of fuel."*

From the phrase, "The breath and perspirable vapor are the smoke arising from the fire," and from what he elsewhere says on the function of respiration, in a "Chapter on Life and Motion," commencing on page 197 of his "Guide to health," it is plainly inferable that he understood animal heat to be intimately asssociated with, if not directly dependent upon, the food in digestion, and the atmosphere in respiration. His views were not expressed

* Supplement to the New Guide to Health, by Samuel Thomson, page 203.

with the clearness and the chemical precision of Liebig or Lehman, for he was an unlettered man; but he had looked face to face into some of the secrets of Nature, he had questioned her oracles, and the responses were truthful and reliable.

Samuel Thomson was the first too, to promulgate correct views respecting animal heat as a *dynamical force in sustaining life, and in preventing and expelling disease.* His celebrated aphorism, "HEAT IS LIFE AND COLD IS DEATH," is alone sufficient to confer immortality; for, properly understood, it is the basis of a *Therapeia* that far trancends all other systems, ancient and modern combined. This, to some, may appear a sweeping assertion, but to us it is a simple truth, taught by experience and observation.

We have before said his views were in some instances crudely expressed, for he was unacquainted with the technicalities and formulas of science; but they are always sound and true to nature He says:

"Being born in a new country, at that time almost a howling wilderness, my advantages for an education were very small; but possessing a natural gift for examining the things of Nature, my mind was left entirely free to follow that inclination, by inquiring after the meaning of the great variety of objects around me.

"Possessing a body like other men, I was led to inquire into the nature of the component parts of which man is made. I found him composed of the four elements—Earth, Water, Air and Fire.

"The earth and water I found were the solids; the air and fire the fluids. The two first I found to be component parts; the two last kept him in motion. Heat, I found was life; and cold, death. Each one who examines into it, will find that all constitutions are alike. I shall now describe the fuel which continues the fire or life of man. This is contained in two things—food and medicine; which are in harmony with each other; often growing in the same field, to be used by the same people. Those who are capable of raising their food, and preparing the same, may as easily learn to collect and prepare all their medicines, and administer the same when it is needed. Our life depends on heat; food is the fuel that kindles and continues that heat. The digestive powers being correct, cause the food to consume; this continues the warmth of the body, by continually supporting the fire.

"The stomach is the repository from which the whole body is supported. The heat is maintained by consuming the food; and all the body and limbs recive their proportion of nourishment and heat from that source; as the whole room is warmed by the fuel

which is consumed in the fire place. The greater the quantity of wood consumed in the fire place, the greater the heat in the room. So in the body; the more food well digested, the more heat and support through the whole man. By constantly receiving food into the stomach, which is sometimes not suitable for the best nourishment, the stomach becomes foul, so that the food is not well digested. This causes the body to lose its heat—then the appetite fails —the bones ache, and the man is sick in every part.

"This situation of the body shows the need of medicine, and the kind needed; which is such as will clear the stomach and bowels, and restore the digestive powers. When this is done, the food will raise the heat again, and nourish the whole man. All the art required to do this, is, to know what medicine will do it, and how to administer it, as a person knows how to clear a stove and the pipe when clogged with soot, that the fire may burn freely, and the whole room be warmed as before.

"The body, after being cleared of whatever clogs it, will consume double the food, and the food will afford double the nourishment and heat that it did before. We know that our life depends on food, and on the stomach being in a situation to receive and digest it. When the stomach and bowels are clogged, all required is, the most suitable medicine to remove the obstruction in the system. All disease is caused by clogging the system; and all disease is cured by removing the obstruction, and by restoring the digestive powers, so that food may keep up that heat on which life depends.

"I have found by experience, that the learned doctors are wrong, in considering fever a disease or enemy; the fever is a friend, and cold the enemy. This I found by their practice in my family, until they had five times given them over to die. Exercising my own judgment, I followed them, and relieved my family every time.— After finding a general principle respecting fevers, and reducing that to practice, I found it sure in all diseases, where there was any nature left to build on; and in three years, constant practice, I never lost one patient.

"I attended on all the forms of fever peculiar to our country, and always used it as a friend. I soon began to give this information to the people, and convinced many that they might as certainly relieve themselves of their disease, as of their hunger. The expense to be always able to relieve themselves and families, would be but small; and the medicine they might procure and prepare themselves.

"This greatly disturbed the learned doctors, and some of them undertook to destroy me, by reporting that I used poison; though they made no mention of my using their instruments of death—mercury, opium, ratsbane, nitre, and the lancet.—I considered it my duty to withstand them, though I found my overthrow was what they aimed at. A plan was once laid to take me in the night, but I escaped. Next I was indicted as though I had given poison, and a bill brought against me for wilful murder. I was bound in irons, and thrust into prison, to be kept there through the winter, without being allowed bail. I petitioned for, and obtained a special court to try the cause, and was honorably acquitted after forty days imprisonment. I maintained my integrity in the place where my prosecution began. In five years, whilst vindicating this new and useful discovery, I lost five thousand dollars, besides all the persecutions, trouble, loss of health, and reproach, which have been in connection with the losses.

"It has been acknowledged, even by those who are unfriendly to me and my practice, that my medicine may be good in some particular cases, but not in all. But this is an error. For there are but two great principles in the constitution of things, whether applied to the mind or body—the principle of life, and the principle of death. That which contains the principle of life, can never be tortured into an instrument of death. If then, a medicine is good in any case, it is because it is agreeable to nature, or this principle of life, the very opposite of disease. If it is agreeable in one case, it must be absolutely so in all. By the active operation of nature, the whole animal economy is carried on: and the father of the healing art, Hippocrates, tells us what is an obvious truth, that NATURE IS HEAT. The principle is the same in all, differing only in degree. When disease invades the frame, it resists the heat in proportion to its force, till overpowered into submission, and when extinguished, death follows, and it ceases to operate alike in all. If then, heat is life, and its extinction death, a diminution of this vital flame, in every instance, constitutes disease, and is an approximation to death. All then, that medicine can do in the expulsion of disease, is to kindle up the decaying spark, and restore its energy, till it glows in all its wonted vigor. If a direct administration can be made to produce this effect, (and it can) it is evidently immaterial what is the name or color of the disease, whether billious, yellow, scarlet, or spotted; whether it is simple or complicated, or whether nature has one enemy or more. Names are arbitrary things; the knowledge of a name is the *cum-*

min and *annis;* but in the knowledge of the origin of a malady, and its antidote, lies the weightier matter of this science. This knowledge makes the genuine physician; all without it is real quackery.

"It has been a general opinion, that extensive study and great erudition, are necessary to form the eminent physician. But all this may be, as Paul saith, but science, falsely so called. A man may have a scientific knowledge of the human frame—he may know the names in every language, of every medicine, mineral and vegetable, as well as every disease—and yet be a miserable physician. But there have been men without this to boast of, from the earliest ages of the world, who have "arisen, blest with the sublime powers of genius, who have, as it were, with one look, pierced creation, and with one comprehensive view, grasped the whole circle of science, and left learning itself toiling after them in vain." A man never can be great without intellect, and he never can more than fill the measure of his capacity.—There is a power beyond the reach of art, and there are gifts that study and learning can never rival.

"The practice of the regular physicians, that is those who get a diploma, at the present time, is not to use those means which would be most likely to cure disease, but to try experiments upon what they have read in books, and to see how much a patient can bear without producing death. After pursuing this plan during their lives, they know just about as much as they did when they began to practice, of what is really useful to mankind. If a patient dies under their hands, why, it is the will of God, and they are sure to get paid for their trouble, and nothing more is said about it; but if one out of hundreds of my patients dies, and where the doctors have given them over as incurable, they at once cry out, that it is quackery, that I gave them poison, etc., for the purpose of running me and my medicine down, and to prevent its being used by the people. The fact is well known to thousands who have used my medicine, and to which they are ready to attest, that it is perfectly harmless; and I defy the faculty to produce one instance, wherein it has had any bad effect."*

By saying that man is composed of four elements, Earth, Water, Air and Fire, he should not be understood as being ignorant of the fact, that these are again subdivided into still more elementary principles, for he says:

*Guide to Health p. p. 199, 200.

"In animal or human bodies, the constituent or component parts are essentially the same in man or beast. Animal bodies are composed of earth and water; these constitute the substances, dimensions, shape and size of bodies, etc., and give or constitute solidity, in what are denominated *solids*.—These elements being constituted of various, still more elementary principles, which may be subdivided again and again, does not militate more against our position, than the infinite divisibility of numbers by decimal arithmetic, destroys the unity of numbers.

"Waiving all the minutiæ of chemical divisions, and subdivisions, in simplyfying elementary combinations that constitute *bodies dead* or *living*, the four great original elements of *air*, *earth*, *fire* and *water*, contain and comprise all the more simple elements of which they may be respectively composed."

Some of his views of Animal Life may be gathered from the following extracts:

"Clearly to understand the laws of life and motion, the radical principles of animalization, is of infinite moment. Without some adequate views and conceptions of these, the nature of disease cannot be correctly understood, neither can we have knowledge to prescribe a rational, safe, sure and certain remedy for the removal of disease when found in the human system.

"Through many long and tedious seasons, these subjects had revolved in my mind, before I could form what I considered a correct opinion. I witnessed many distresses in the family of man; my heart was pierced with many sorrows, until my mind was established in those simple truths, that have laid the foundation of my practice, that has been so successful in subsequent years.

"Among those physicians called regular, I have found many who appeared to be as ignorant of the laws of life and motion, and how the functional powers of life are kept in operation, as though they themselves had never possessed an animal body.

"The subject may be further illustrated by reference to the effect of heat on the atmospheric air. You build your house in the open atmosphere—the house is filled with air within—the air within is a counterbalance, or resistance to the weight or power of the surrounding air without; the balance within and without is equal in coldness and inaction, resembling a state of death. To produce action, motion or breath, build a fire in the house, the doors and windows being closed in the usual manner, in a few minutes every door and window begins to hum and sound the march of air.—The air within becomes rarified and lighter than the air without,

the air without presses in at every crevice to restore or form an equilibrium with the air within; the hotter and stronger the fire, the stronger will be the current of breath, or force of *breathing air* —as the heat diminishes, the noise and breathing current of air will decline in force of operation, and the noise and motion will cease when the heat becomes extinct, and the equilbrium is restored.

"The effects of heat rarifying and lightening the water and air, and occasioning a breathing motion, resemble and illustrate in some good degree, the breathing, sweating and functional motions of the animal machine. The constituent or component parts of men's bodies, give organic shape and size, and form and functional structure or organization to the machine. The peculiar mixture, composition, proportion, and modification of these elements, constitute its aptitude or adaptation to the animalizing influence of fire, lightening air, and exciting breathing motion, and all the concatentations of motion connected with this original or primary action, all evincing that heat is an essential principle of life, and cold, or an extinction of heat, is death.

"A still born child was resuscitated by placing the placenta or after birth, on live embers, still connected with the child by the umbilical cord or naval string, and as the after birth began to heat, and had gained warmth sufficient to begin to fill and dilate the naval cord with warmth and moisture, it was stripped towards the body of the child, and through this medium a sufficient degree of warmth was conveyed to the body, the lungs expanded, and life was restored. This may serve in some measure to illustrate and confirm our ideas of life and motion.

"In every thing that breathes, the breathing is from the same general cause. The principle of life and motion is radically the same in all animated bodies. Without heat there is no breathing; but when heat is continually generated or evolved in a confined room, excepting at one avenue, as in the lungs, there must be breathing, or what is the same, an inhaling of cold air, and an exhaling of a gaseous vapor from them.

"Every animated body has its proportion of caloric or heating principle, suited to its size, adapted to its nature, proportioned to that degree of living power requisite to keep up the operation of all the animal functions, essential to the perpetuating of the peculiar specific form and mode of being in such animal.

"The heat of animal fire, or that degree and condition of it that constitutes the living state of animalized existence, is maintained

and continued by a suitable supply of appropriate fuel, or materials that are natually adapted to that end or use: *these are, food and medicines.* These harmonize with each other in their salutary effect, or natural influence on animal bodies.

"Food and medicine originate from the same munificent hand, grow in the same field, and are adapted to the same end or design, viz: to supply fuel to the fire of life, to sustain and nourish the animal machine, by warming dilating, filling the vascular system, maintaining the action, and supplying the wasting powers of the living state. Medicine removes disease, not only by removing obstructions, but by restoring and repairing the waste and decay of nature.

"To understand the cause and nature of life and death, or of warmth and motion, of cold and inaction, it is necessary to advert to general principles, and the analogies of nature. There is one general cause of the natural sensations of hunger, and one general method to relieve that want, or satisfy and relieve that sensation. Suitable food relieves hunger when taken into the stomach.

"In perfect accordance with this, there is but one immediate cause of disease—however varied the remote cause may be, the immediate cause of the sensation of disease, is uniformly and invariably the same, differing only in degree, and incidental diversity of symptoms, occasioned by local injuries, organic lesion, or functional derangement dependent on these, or whatever might predispose to a diseased state.

"As there is one general cause of the sensation of hunger, to be relieved by one general method, viz: by food, and this food may consist of sundry articles adapted to the same general end, so there is one general, or immediate cause of the sensation of disease, to be relieved or removed upon one general principle, though a variety of articles may be used. But as a few simple articles of diet are better suited to maintain a healthy state of body, than an epicurean variety, so disease is more readily and certainly removed by a few simple remedies, that are best adapted to the human constitution.

"*That medicine that will most readily and safely open obstructions, promote perspiration, and restore a salutary operation of the digestive powers, by exciting and maintaining a due degree of heat and action through the system, is best suited to every state or form of disease, and must be universally applicable to a diseased state of the human system.*

"By heating water in the stomach, and air in the lungs, we

put the steam engine into operation. The operation of the animal machine strongly resembles the mechanical operations of the steam engine. Some of the fundamental principles of action are the same. In inspiration, cool fresh air is inhaled; in respiration, the rarified lightened air and vapor are exhaled or thrown off, out of, or from the *steam pipe*. By this action, in which steam is expended, the whole machinery of the living animals is kept in operation—the great fountain pump of the heart is kept in play, and pumps the blood through the lungs and arteries to the extremities, deep in the flesh and near the bones, which is returned in the veins.—The warmth and action commencing at the fountain, are propagated through the system to the remotest extremities.

"So long as the fire keeps up that state, and degree of warmth essential to the living state of the animal body, or, to speak figuratively, so long as the fire is kept good in the boiler, to keep the engine at work, so long the pump will go.

"On these principles of the philosophy of life we may expect a regular well formed machine to continue its operation, until worn out, or broken by the indiscretion and bad management of the engineers.

"If the machine be entrusted to the management of an ignorant, incompetent engineer, who has no correct conceptions of the principles of life and motion, and is negligent in the discharge of his duty, your *steam boat*, if I may so speak, will begin to fail in its speed, for lack of fuel to keep up the fire and water to supply the steam; or the engineer may conclude *the cholera* affects the machine, and will cast ice into the boiler to cool it down, or tap the boiler as a preventive or remedy, and draw off the hot water—his boat begins to sink rapidly down stream. This is often done by the lancet.

"If you would keep your steam boat's *steam-breath* motions going on, keep up a supply of fuel to keep it sufficiently warm; raise the steam, and the actions of life will proceed regularly.

"When we are asked what constitutes a living fibre, we might as well ask what constitutes any other property of living matter. What constitutes that in which the life of a leaf or stem of a living tree consists? 'What can we reason, but from what we know?' Every living thing has something peculiar to the nature or life with which it is endowed in the living state, whether vegetable or animal—but a living animal has heat and motion; without this animal heat and motion, the animal becomes dead—without a due

proportion of heat inward and outward, or outward and inward, there is no animal motion, no animal life.

"We know not of any vital principle, except a capacity to be brought into that peculiar mode, state and degree of warmth and action, constituting animalization, or the sensitive living state of animal bodies.

"Warmth and action, do not constitute animal life, only as applied to, connected with, and exercised in an organized animal body, possessing a capacity inherent in its nature to be put in operation, in which state or condition of being, sensation, perception, and consciousness of identity, or individual existence, are gradually developed: but these circumstances of life are not life itself—there may be animal life, viz: breath and motion, in an animal body where these functional powers are totally deranged or utterly extinct.

"Fire and steam are necessary to propel a steam boat, but notwithstanding the capacity or adaption of the mechanical structure to be propelled, the boat will not go until the fire is kindled and the steam raised to put it in motion.

"The animal body is the machine so constructed, so modified, endowed with such a capacity for life, call it vital principle, or what you please, that heat rarifying and lightening air, stimulating and expanding the lungs, puts the machinery in motion, and pumps the tide of life through all its crimson channels. This combination of circumstances constitutes the living state of the living animal; for where these circumstances do not exist, there is no animal life—the animal form is dead.

"Suppose a man in all the vigor of life, falls into the water and sinks, in a few minutes he is taken out apparently dead, the warmth and motions of life, if not extinct, are at a low ebb—as soon as you can kindle up the decayed spark, and restore inward heat by medicine, friction, or any appropriate means, if the capacity for the action of life is not utterly extinct, an energy is given to the system, the air in his lungs becoming warm, rarifies and expands, and heaves them into action—the machinery begins to move—the wheels of life no longer wallow in back water—the proper state and proportion of heat inward and outward, is recovered—nature rises to its wonted strength and vigor.

"All that is requisite in such a case is, to supply fuel to raise the latent spark of the fire of life. The same holds good in a collapsed state of disease, whether it appears in a cholera form, or whatever shape it may wear. The vascular system loses

its wonted tone, the whole system is sinking—the power of life is unable to distend and expand the lungs, the heart and arteries no longer propel their contents by maintaining the requisite action. The spark of life is becoming extinct, the water that should exhale and perspire away, becomes congestively condensed, and extinguishes the spark of living fire. The coolness and weight of the internal air, is too much for the small degree of heat remaining in the lungs, heart, etc.; the power of life, or rather the power or capacity to live, to keep the powers of animal life in their warm and moving, or living state, becomes measurably extinct.—For lack of heat, the air in the lungs is not rarified and lightened, so as to give the necessary action, etc.

"In this case, shield the sufferer from surrounding cold air, by wrapping in a blanket, placing warm in bed, and gradually raising a steam around him, administer gradually, frequently, and perseveringly, the warming medicines, and giving injections, which all acquainted with my system will readily understand—proceed until you can gain a sufficient degree of inward heat to expand freely, to rouse the sinking, fainting, I might say, drowning patient, to a proper degree of warmth and action; when they have pursued a proper course, he will sweat freely; and when he craves food, give him enough to keep up the steam; the pump of life will begin to work freely, and the patient to rejoice in the warmth and action arising from the resuscitated powers of departing life.

"Much has been said about drawing in the breath; but the fact is, you cannot keep the air out, so long as there is a due degree, or natural proportion of heat in the lungs; neither can you prevent the motion of the pump-like action of your heart in its systole and diastole. But when the heat decays, or state of living warmth declines, the lungs begin to labor like a wheel wading slowly in back water. The pump has not power to roll the blood along the arterial canals—they falter—the extremities grow cold—the blood that maintained the warmth, by its active circulation, recedes from the extremities—there is not heat enough at the fountain or boiler to keep up the steam, and continue the living action—blood settles in the veins, not being supplied or propelled by the pulsation in the arteries—the fire becomes extinct—the pump no longer plays at the fountain; the man dies for want of breath, for want of capacity to breathe, or because the inward heat is reduced below the living point. The proper and natural proportion and

modification of the inward and outward heat, as they exist in the living animal, become deranged, destroyed, and life is extinct.

"The regular faculty are requested to inquire whether the depleting antiphlogistic practice, that has been popular, and notoriously mortal in its results, has not been the cause of producing much disease, and many of the most fatal results that have attended on what has been called scarlet fever, yellow fever, cold plague, and *now* cholera.

"In conclusion, I would remark, that the cause of vegetable and animal life are the same, viz: one common principle produces similar effects; nutritive life in animals and vegetables bear a striking resemblance to each other—vegetables, like animals, are constituted or formed of the four great cardinal elements—all vegetable life is under the control, influence and operation of similar principles, as that of an animal. Without *earth*, *water*, *fire* and *air*, nothing like vegetation could exist. The winter season is a state of *death* to vegetation; just in proportion to the loss of heat, is the degree of the suspension of life, we mean a loss of heat in that peculiar modification or elementary combination thereof, that constitutes the living state of a vegetable; this is a degree of death, or a degree of the suspension of vegetable life. In many instances the suspension is total.

"In cold countries, after the winter has passed away, and the spring returns, suspended vegetation, and suspended animation, are again restored; the torpid reptile again inhales the breath of life. Heat in this case is not only an agent of restoration to life and vigor, but is so adapted to the condition of the being on which its influence is exerted, as to constitute a living principle. So, on the other hand, cold is not only an approximation to death, but that degree of cold which is inconsistent with, and contrary to the living state, is death itself.

"Heat does not act alone and independent of its fraternal elements, but in harmony and accordance with the whole family.—But without their elder brother, there is no life in the material universe. The elements would rest in everlasting silence and inactivity, if destitute of this generative principle of life and motion.

"Abstract the element of fire from all the other elements; stillness and silence would be universal—the life of all that breathes and moves would be swallowed up in the stillness of eternal death. Earth and sea would be and remain a solid unmoving and immoveable mass—the fluid air would be consolidated to the flinty

hardness of the diamond on its native rock—creation would be a blank."

Thomson's views of Fever are such as have been confirmed by the ablest Pathologists and Physiologists; views, however, which the medical profession have, unfortunately, been too slow in adopting. He was the first to proclaim to the world that what is called "fever," with many of its attendant phenomena, is not disease, but merely a symptom of disease; that the *heat*, the *increased action of the heart and larger arteries*, are friendly efforts of nature to expel the real disease, which consists of obstruction in the capellaries and pores, and that these efforts are to be promoted by the physician, and not subdued. Those simple propositions contain volumes of practical wisdom. In fever or inflammation, the heat, the inflammation, and increased action, are curative in their tendency; they are but the struggles of the *vis medicatrix naturæ* to rid the system of the accumulated morbific matter, and the physician who pursues a depletive course of treatment, either with the lancet, the blister, drastic purges, narcotics, administering poisons, or by any means that will depress the energies of the system, is contravening the laws of life, and in proportion as he does this, is diminishing the chances of his patient's recovery. And under such treatment, if the patient does recover from a fever, from pneumonia, or any other disease, has he not frequently a morbid impression made upon his constitution from which he can never recover; an impression more to be deplored than the disease for which he was induced to submit to the depleting and poisoning course of treatment? Facts and reasonings like these struck the mind of Thomson; a mind untrammelled by the dogmas and formulas of the books and schools; and he pursued a new line of investigation, and thousands are now receiving the blessings of the results.

He says: "According to the writings of learned physicians, there is a great variety of fevers, some more, and some less dangerous. But to begin with a definition of the NAME: What is a fever? Heat, undoubtedly, though a disturbed operation of it.—But is there in the human frame, more than one kind of heat?—Yes, says the physician, (strange as it may appear,) there is the pleuritic heat, the slow nervous heat, the putrid heat, the hectic heat, the yellow heat, the scarlet heat, the spotted or cold heat, the typhus or ignorant heat, and many other heats; and sometimes (calamitous to tell) one poor patient has the most, or the whole of these fevers, and dies at last for want of heat!

"Is fever or heat a disease? Hippocrates, the acknowledged father of physicians, maintained that nature is heat; and he was correct. Is nature a disease? Surely it is not. What is commonly called fever, is the effect, and not the cause of disease. It is the struggle of nature to throw off disease. The cold causes obstructions, and fever arises, in consequence of those obstructions, to throw them off. This is universally the case. Remove the cause—the effect will cease. No person ever yet died of a fever! for, as death approaches, the patient grows cold, until in death, the last spark of heat is extinguished. This, the learned doctors cannot deny; and as this is true, they ought, in justice, to acknowledge that their whole train of depletive remedies, such as bleeding, blistering, physicking, starving, with all their refrigeratives, their opium, mercury, arsenic, antimony, nitre, etc., are so many deadly engines, combined with the disease, against the constitution and life of the patient. If cold, which is the commonly received opinion, (and which is true,) is the *cause* of fever, to repeatedly bleed the patient and administer mercury, opium, nitre, and other refrigerants, to restore him to health, is as though a man should, to increase a fire in his room, throw a part of it out of the house, and to increase the remainder, put on water, snow and ice!

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"At the commencement of a fever, by direct and proper application of suitable medicine, it can be easily and speedily removed. Twenty-four or forty-eight hours, to the extent, are sufficient, and often short of that time, the fever may be removed, or that which is the cause of it. But where the patient is left unassisted, to struggle with the disease, until his strength is exhausted, and more especially, when the most unnatural and injurious administrations are made, if a recovery is possible, it must of necessity take a longer time. * * * * *

"Notwithstanding all these things, how true are the words of the intelligent Dr. Harvey, who says: 'By what unaccountable perversity in our frame does it appear, that we set ourselves so much against any thing that is new? Can any one behold without scorn, such drones of physicians, and after the space of so many hundred years' experience and practice of their predecessors, not one single medicine has been detected, that has the least force directly to prevent, to oppose, and expel a continued fever? Should any by a more sedulous observation, pretend to make the least step towards the discovery of such remedies, their hatred and envy would swell against him as a legion of devils against virtue;

the whole society would dart their malice at him, and torture him with all the calumnies imaginable, without sticking at any thing that should destroy him root and branch. For he who professes to be a reformer of the art of physic, must resolve to run the hazard of the martyrdom of his reputation, life and estate.'

"The treatment which the writer has received from some of the learned physicians since his discovery of the remedies for fever, and various other forms of disease, is a proof of the truth of this last saying of Dr. Harvey.' They have imprisoned him, and charged him with every thing cruel and unjust; though upon a fair trial, their violent dealings have come down upon their own heads: while he has not only been proved innocent before a civil tribunal, but his practice useful, he having relieved many which the other physicians had given over to die.

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"The practice of bleeding for the purpose of curing disease, I consider most unnatural and injurious. Nature never furnishes the body with more blood than is necessary for the maintenance of health; to take away part of the blood of any person, is taking away just so much of his life, and is as contrary to nature, as it would be to cut away a part of his flesh. Many experiments have been tried by the use of the lancet in fever, but I believe it will be allowed by all, that most of them have proved fatal; and several eminent physicians have died in consequence of trying the experiment on themselves. If the system is diseased, the blood becomes as much diseased as any other part; remove the cause of the disorder, and the blood will recover and become healthy as soon as any other part; but how taking part of it away can help to cure what remains, can never be reconciled with common sense."

The remedies, too, introduced by Thomson are far unsurpassed by any in all the Materia Medicas and Therapeutics in the world. The vapor bath, Lobelia, Capsicum, and other pure stimulants, tonics, detergents, alteratives, expectorants, etc., know no counterparts in the *Therapeia* of Old School Medicine.

To him are we indebted for most that is valuable in Hydropathy—the vapor bath, and the use of cold water. His eldest daughter, then just two years old, sick with scarlet fever, being given over to die by the physician, it occurred to him that the application of hot vapor to the surface might bring out the eruption. By placing the child on his lap, and covering her with a blanket, then having a hot shovel placed between his feet, on

which he poured vinegar, the desired result was accomplished.—The effect was most happy. She soon recovered. From that time the vapor bath became a very important agent in the treatment of disease. Those alone who have witnessed it know its power in expelling disease from the system. To produce a powerful reaction, he employed a *douche* of cold water immediately after the vapor bath.

With him, the Lobelia emetic was an important means of cure. The stomach is the great centre of sympathy. Believing disease to depend upon the obstruction of morbific matter in some part of the system, and knowing that any impression made upon the stomach is readily conveyed by sympathy to any or every portion of the organism, he inferred that a detergent action upon the stomach would be readily imparted to any organ or tissue, thereby enabling it to discharge its morbid contents, thus restoring it to healthy action. Thus, congestion, inflammation, and diseased conditions may be removed by a Lobelia emetic.

From the foregoing brief sketch, the doctrines of Samuel Thomson may be gathered. They are plain and clearly expressed. When applied in the treatment of diseases, the true test of all medical doctrines, they are found almost infallibly to abide the test. Being an unlettered man, and without the pale of "regular medicine," his wonderful cures excited the envy and hatred of some of the "regulars." He was persecuted and prosecuted. By the most outrageous and unmanly proceeding he was indicted for murder. He was imprisoned and put in irons. Every indignity that malice could invent was heaped upon him. An attempt was made to prove that Lobelia is a poison, but it *failed utterly*. Nor has there ever, to our knowledge, been a well attested experiment, from any quarter, to prove that Lobelia has ever in a single instance caused either death or any permanently deleterious effects. We challenge the world to produce such an instance. We forbear the recital of the details of Thomson's labors, his success, his sufferings and his wrongs. He has left an imperishable monument to his fame, of which the malice of the world can never rob him.

We cannot close this sketch without introducing a few extracts from letters of Professor Benjamin Waterhouse, M. D., formerly Professor of the *Theory and Practice of Medicine* in the medical department of Cambridge University, Massachusetts, which position he occupied for *twenty-seven* years, gaining a medical fame that placed him deservedly high in England, France and Germany.

In this country he was regarded as one of the highest ornaments of his profession, particularly before writing his honest sentiments respecting Thomson, and his Medical system.

In a letter to the Editor of the Boston Courier, he says:

"I have lately read, with considerable interest and some surprise, a little volume, of nearly two hundred pages, entitled, 'A narrative of the Life and Medical Discoveries of Samuel Thomson, containing an account of his System of Practice, and manner of curing diseases with Vegetable Medicines upon a plan entirely new;' to which is added, his *New Guide to Health*, containing the principles upon which the system is founded.

"While reading the book, I said to those who recommended it to my perusal, this man is no 'Quack.' He narrates his medical discoveries, gives an account of his system of practice, together with his manner of curing diseases, upon a plan confessedly new; to which he adds the *principles* on which his new system is founded. He who does this is no *Charlatan*, but by uniting theory to practice, merits attention. With these ideas of cultivation and promulgation of human knowledge, I read the narrative of Samuel Thomson, and soon perceived that he was a man of good capacity, persevering temper, and benevolent disposition; and then he acquired his knowledge of the hitherto unknown virtues of certain plants by experiments, first on himself, and then on those about him. In the course of twenty or thirty years, he arranged his experimental knowledge into a system, as did the father of physic before him, however imperfect; and, having done this to the best of his power, (for he had no literary education,) he published the result of his experience, labor and thoughts to the world, for it to judge of them and him.

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"I have no doubt that Samuel Thomson has added a very valuable article to the *Materia Medica*, and that he has again and again relieved the sick where others have failed. From all that I can recollect, I am induced to believe that he is not an avaricious man, but one who is more flattered by success in relieving the sick than in receiving their money. This at least, entitles him to a fair and patient hearing. It is possible he may have deceived himself; but it does not appear that he has laid himself out like a conjuror, to deceive others. If this man has devoted the greater part of his life to his fellow men, his labors claim respect, and his errors our indulgence; for who of us are free from them? Let the unprejudiced man, who reads his Narrative and Guide to Health, judge

for himself; but should he boggle at his theory of heat and cold, let him remember that Thomson, without knowing it, has adopted a theory of Galen; and his idea of the preserving power of nature, the curer of disease and preserver of life, appears to be the same as that acknowledged by Hippocrates; but the writer could not express it in Greek.

"Thomson is not a Quack, if by quack, we mean a vain, artful, tricking practitioner in physic. He is an *Experimenter* who accumulates knowledge by his own experience. There was a sect among the ancients who assumed the appellation, to distinguish themselves from dogmatists, who, without experience, taught dogmas. If samuel Thomson be a quack, he is a quack *sui generis*, for being an enemy to concealment, he tells all he knows in as plain a manner as he possibly can, and leaves you to form your own judgment, provided you divest yourself of the fashion of this world in physic, which, with priestcraft, is fast passing away.

"Read this book, men of New England, and after making due allowance for the author's condition, situation and provocations, judge whether such a man merits the *persecution* he has endured, and the treatment he has met with."

BENJAMIN WATERHOUSE.

In a letter to Samuel Thomson, dated Cambridge, December 8th, 1835, we have the following:

"*Dear Sir:*—To questions put to me yesterday I answer, that I remain firm in the opinion that you were the discoverer of the remarkable medical virtues of the *Lobelia inflata*, as a safe emetic, and other rare qualities in effectually deterging the stomach and intestines of foul and morbid matter—a prime object in the removal of all disorders consequent on imperfect digestion. The efficacy and safety of this vegetable I have had ample and repeated proofs of in a number of cases, and in my own person, and have reason to value it equal to any article in our Materia Medica.

"That you yourself were the originator of this compound process, very extensively known under the title of the *Thomsonian Practice or System*, I have no doubt whatever. I mean the uniting the warm bath, with the thorough cleansing of the whole alimentary canal. I value and recommend it upon this account. It effects in three or four days, what we regular physicians use to occupy as many weeks to accomplish. As a public teacher of the practice of physic, I have told my pupils for nearly half a century

past, that when they have learned how to restore the long impaired organs of digestion to their pristine or natural state, they have acquired two-thirds of their profession; and on that simple principle is based the whole doctrine of my printed lecture on the pernicious effects of *smoking cigars*, and the inordinate use of ardent spirits.

"Furthermore: the regular physician finds it necessary sometimes to make *a great change* in the human frame, or to make a very strong *counter irritation*, so as to obliterate the *morbid* or *destructive* one. This used to be done by *quicksilver*, that is, *mercury* in the various preparations; when pushed to a *salivation* it dilapidates, if we may so speak, or dissolves the human fluids, all of which are made up of globules, or round particles, on the *crasis* of which depends the vital integrity of our bodies, and of course, our health and vigor. After the hazardous process of salivation, the physician may, perhaps, be able to say—*now I have so far* changed the morbid state of the patient, that his disease is conquered, and entirely overcome by the powerful operation of the *mercury*. But then in what condition does he find the sufferer? His teeth are loosened, his joints are weakened, his healthy countenance is impaired, his voice is more feeble, and he is more susceptible of cold, and a damp state of the weather. His original disorder is, to be sure, overcome, but it is paying a great price for it. Secret history conceals from public notice innumerable victims of this sort.

"Now, my sagacious, industrious, and much respected EMPIRIC, let us come to the point you seem to aim at, namely, my opinion on the whole.

"I consider a man laboring under a chronic disease of some time standing, who has passed through one, two, or three, as the case may be, of your processes of the Lobelia emetic, to be as much altered (and that for the better) as the man who has gone through the very disagreeable and dangerous operation of mercurial salivation; and if so, your discovery is highly valuable, and on this account it was that I spoke freely and strongly in commendation of the new practice, and was not afraid or ashamed to hail you as a Reformer, and to give you full credit, and in this view, I have always considered you as standing on higher ground than *Paracelsus*, who was born in 1493.

"As to the point of your *originality*, I will sum it up in as few words as I possibly can—I regard you as the TREE, the root and trunk, of the Lobelia and vapor bath system conjoined: its limbs

your immediate agents, and its leaves and fruit, the purchasers of the rights and privileges—all deriving their value from the Tree of knowledge; and having said this, I have performed a grateful office, and I may add, duty, to all around me, and remain, and hope ever to remain,

Your steady friend,

BENJAMIN WATERHOUSE."

To E. G. HOUSE, ESQ., BOSTON.

"Anterior to 1745, the study and practice of physic was very little variant, if any, from what *Samuel Thomson*, the *Patriarch* of the *Lobelia* and *steam system*, has by great pains and labor accumulated during more than forty years of an industrious life. The most solid, immoveable, and valuable portion of our art, is derived from *experience;* and the best qualification of it is *sagacity*, and the next to that is INDUSTRY—all of which the *Patriarch*, *Samuel Thomson*, possesses eminently. The *scientific* physician follows, and copies the rules of others, and that constitutes the *learned* physician; but *Samuel Thomson* studied the *Book of Nature*—that is, the nature of man, and everything about him, as did the famous physicians among the ancients, and some of the best and most successful among the moderns.

"*Samuel Thomson* restricts his means of cure to the *vegetable* kingdom, and rejects entirely the *Mineral* one, all except *water*. I will not dispute with him. Let him stick to his system, and let us *regulars* profit by it, and in return it would enlarge his own useful knowledge. I confess I have learned several valuable things from his many experiments, and his severe scrutiny into the nature, qualities, and medicinal virtues of our own native plants.

"I rank *Samuel Thomson* among *discoverers*, and respect him as such. He is not an *impostor*. He has an uncommon stock of *natural* knowledge, and enjoys the benefit of his discoveries and trials by the security of a patent. The *vast* West has been benefitted by them, and they have been, in some degree, tributaries to him.

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"In one thing every thinking man must and will agree; for it admits of no dispute. It will be admitted as an axiom, namely—the *Thomsonian* practice has been diffused through New England between fifteen and twenty years, and still maintains its credit; and every year its roots strike deeper, and its branches spread wider and wider. * * * If the Lobelia had been proved a

worthless plant, it would have been years ago, '*thrown like a loathsome weed away.*' On the contrary, I had rather be without that very nauseous powder, *ipecac*, which makes me spit while I write, than to be deprived of the more agreeable and efficacious *Lobelia.*

"We import *Ipecacuanha* from South America, and sometimes use it after it has been a dozen or twenty years out of the ground, whereas we can cultivate the Lobelia in our own gardens, and pick it up in our own fields. I not only prescribe it to others, but I take it myself, whenever I have any occasion for an emetic. I value i equally with the Peruvian Bark, or with Rhubarb, Jalap or Senna, or any other medicinal plant you can mention. Instead of *Lobelia*, it ought in justice, in honor, and in gratitude, to be called *Thomsonia emetica.*

"But the discovery of the medical qualities of this indigenous plant, is not the sole merit or *felicity of Samuel Thomson.* His vapor-bath process, to which the *Lobelia* is the *Prodromos*, (or in plain English, file-leader, or fore-runner,) is, taken together, a very valuable *improvement* in our practic, if conducted by persons as experienced and as sagacious as the *Patriarch Thomson.*

"In England, Parliament would probably have purchased the procedure by a liberal grant. In France, at least under the old *regime*, the King would have bought it. But we, wiser than any of them, have only tried to pick it to pieces. Still, I consider it a valuable anchor, the emblem of Hope, to which is attached a firm cable, and that numbers have been trying in vain to pick it to oakum; but which will, I trust, be like the strongly twisted cord that binds our happy States together, acquiring strength by age.

"To weigh *Patriarch Thomson* in the scales of the regular physician, would be as unjust as for them to be weighed by his steelyards. They practice on different principles, feelings and views —each honest in his respective path of art and nature. They both will come out in the same road at last, and travel on together to the temple of honor and profit.

"*Samuel Thomson*, like most reformers, has endured in our county of Essex, as much severe persecution as ever was perpetrated in it; which is saying a great deal, when we call to mind the days of the delusion of *Witchcraft.* Though *capitally* indicted for murder by using Lobelia, he was discharged without a trial, after something like a reprimand of the Solicitor-General by the Court. Yet it is remarkable that Chief Justice Parsons deeemed it worth while to write the report of it in the Sixth Volume of Tyng's Collections.

"I feel diffident and doubtful whether I have said too much, or too little on a subject that will increase in importance with time. Reformers—originators, and exterminators of loathsome and shocking diseases, are always considered as benefactors of the whole human race—not merely those who are now living, but of those who shall live after us, as long as letters and other records shall endure.

BENJAMIN WATERHOUSE."

Cambridge, Dec. 1835.

To SAMUEL L. MITCHELL, L. L. D. of N. Y.

"Dr. Samuel Thomson, who has the honor of introducing the valuable *Lobelia* into use, and fully proved its efficacy and safety, will deliver you this. He has cured and relieved many disorders which others could not, without being a regular diplomatized physician, and dared to be a republican in a hot-bed of federalism; for which he has been shamefully ill-treated, even to persecution.

"I have aided and assisted Thomson from a firm belief that his novel practice has been beneficial to numbers, and that it may be placed among improvements. If he be a quack, he is a quack *sui generis*, for he proclaims his mode and means. Had John Hunter, whom I well knew, been born and bred where Samuel Thomson was, he would have been just such another man; and had S. T. been thrown into the same society and associations as J. H. he would in my opinion, have been his equal, with probably a wider range of thought; both are men of talents and originality of thought.

"I am, indeed, so disgusted with learned quackery, that I take some interest in honest, humane and strong-minded empiricism; for it has done more for our art, in all ages and in all countries, than all the universities since the time of Charlemagne. Where, for goodness sake, did Hippocrates study?—air, earth, and water —man, and his kindred—vegetable; disease and death, and all casualties and concomitants of humanity, were the pages he studied—everything that surrounds and nourishes us, were the objects of his attention and study. In a word, he read diligently and sagaciously, the *Great Book of Nature* as Thomson did, instead of the little books of man."

In another letter to the Editor of the Boston Courier, he says:

"With due submission to that privileged body of physicians denominated through courtesy, *the faculty*, I should place *Samuel Thomson* among the *reformers* of the healing art.

"The famous GALEN dictated the laws of medicine full four-

teen hundred years after his death, by his, then, matchless writings. After the revival of letters, *Paracelsus.* who was born, 1493, in Switzerland, appeared as a reformer of the system of Galen.—He was learned in Latin, Greek, and several other languages, and of respectable connexions. He first introduced mercury, (quicksilver,) antimony and opium into the Materia Medica; but he was arrogant, vain and profligate, and after living the life of a vagabond, died a confirmed sot. He studied mystery, and wrapped up his knowledge in terms of his own invention, so as to keep his knowledge confined to himself and a few chosen followers. The very reverse of *Thomson*, who performs numberless cures, and makes no secret of the means. The cant phrase of 'Quack' belongs to the learned Paracelsus; but not to the mystery-hating *Thomson*, who considers mystery and roguery offsprings of the same father—the man of sin—the old father of lies and deception. If *Thomson* be a quack, he is a quack *sui generis*, or a cheat of a new and singular class."

If other medical lights, like Dr. Waterhouse, would cast aside their prejudice, and examine for themselves the Reform System of Medicine, and then would speak their honest sentiments, it would suffer less injustice at their hands. But we proceed with other portions of the History of Reform.

CHAPTER X.

Other Reformers—First Reform Journal—Extract from Prospectus—Other Journals—First United States Convention—Call by Thomson—A. Curtis—Extract from his Communication—First Reform Medical College—L. Bankston—D. F. Nardin—Southern Botanic Journal—Extract from Charleston Courier—Tribute to D. F. Nardin—Wm. F. Foncrden—Southern Botanico Medical College—Sketch of its History—Its present Condition—Its Faculty—Biographical Sketches—Botanico Medical College of Tennessee—Worcester Medical Institution—Metropolitan Medical College, N. Y.—Conclusion.

In the previous chapter we have spoken only of Samuel Thomson in connection with Medical Reform. We come now to mention the labors of others. In doing this we shall honestly endeavor to award equal and impartial justice to all concerned, so far as the sources of information are at our command; and we have in our College Library every periodical, book, and other publication on the subject, of which we have any knowledge. Should any thing of importance be omitted, it will not be from any intention on our part.

The first periodical of which we have any direct information is the Thomsonian Recorder, issued at Columbus, Ohio, published by Jarvis, Pike & Co., and edited by Thomas Hersey, the first Number bearing date September 15th, 1832. In the 2d No. of the same work, page 17, we find an allusion to the "failure," etc. "of one or two periodicals," of which we know nothing. From the prospectus of the 1st No. of the Thomsonian Recorder, we make the following extract:

"In addressing you for the first time, through the medium, as it were, of our own organ, we feel it a duty to inform you *plainly*, the course we design to pursue, in conducting this periodical.

"In the first place, then, we intend this work shall be, what its title emphatically implies, the Thomsonian Recorder.

"For the last twenty or thirty years, there has been one continued and untiring effort by the conductors of the press, in the United States, to destroy alike, both the Thomsonian System and

its Author. Accounts the most base, and statements the most false, have been, and still continue to be, eagerly carried the rounds of the public papers, and scarcely one solitary press has dared to refrain from echoing the malicious sounds; and the time has been when Dr. Thomson could not even hire a piece published in his defence. Why are these things so? The reason is plain to every intelligent mind, that has passed the threshold of enquiry upon the subject; it is *the influence of the medical faculty!*— This has been accumulating for centuries, until they vainly imagine themselves the only rightful oracles of the science. Although they have, by help of the dead languages, rendered their mysteries unintelligible to the body of the people, and made them, to a wonderful extent, tributary to their order, yet there is a point, beyond which oppression cannot be endured, and whenever the expansive mind once bursts the shackles of tyranny, it cannot again soon be reduced within its former bounds. The medical faculty have virtually issued the mandate to the people, 'thus far shalt thou go and no farther,' to us you *shall* apply, and from us alone you shall receive whatever we may please to give; and although the most envious towards each other individually, they have never failed to unite their influence, for the utter destruction of any man, or system that makes any advance towards exposing the horrid effects of their poisonous practice. Does any one doubt the enormous influence of this class of citizens? Let him examine the different State Medical Laws, and he will find, to the disgrace of the Legislatures of some of the States, that he who deals out death and destruction with an unsparing hand, is not only commissioned to do so, but his *Shylock* charges, for his life destroying services, must be paid to the uttermost farthing to the exclusion of all other demands. Those who, perhaps, have furnished the distressed family with the absolute necessaries of life, during their greatest affliction, must step aside, and jackal like, wait for the carcass, if, indeed, they are so fortunate as to find that, while he who dares to remove disease with healing medicine, which the God of Nature has so profusely scattered for the benefit of all, must be ranked with malefactors, must be deprived of his rights as an American citizen, *must be outlawed!*

"To unmask the monstrous Craft by which these things are effected, is one great object we have in view. Wherever the monster may be found, our efforts shall not be spared, to make his hideous form apparent.

"It may be thought by some, that our remarks are too severe

on the Medical faculty—but, recollect, that we speak of them as a body. That there are honorable exceptions, we are proud, for the cause of humanity, to declare; but from them as a body, we ask nothing, for were we to ask for bread, we should expect a stone, and were we to ask a fish, we should expect a serpent, and were we to ask for *medicine* we *know* we should receive *poison;* we repeat it, from them we ask nothing. Let them fulminate their anathemas and report and publish falsehoods as they have done, let them publish 'death by Steam and Lobelia,' and tell of the poisonous effects of the Lobelia, and the vitriol like effects of Cayenne to the amusement of all those who have a knowledge of the truth, and we will tell them, that they themselves, by so doing, spread the system faster than a legion of Dr. Thomson's could without such help—for they excite the people to a candid enquiry, and wherever this much is effected, we have full confidence that a knowledge of the truth is at hand."

It will be remembered that the Cholera made its appearance on this continent in 1832, the year in which the Recorder was commenced. In its pages are found many interesting items relative to the success of the new practice, and the almost total failure of the old, in the treatment of this disease.

In the general Preface to the 1st Volume of the "Recorder," we find the following remark. "At our Commencement the 'Eclectic,' of Mr. Howard was started to oppose us." In the 2d No., Vol. 1st, is a notice of the 1st No. of the "Thomsonian Botanic Advocate," published in Troy, N. Y., by Russel Buckley.

Previously to 1832, what were denominated "Friendly Botanic Societies," had been organized in a number of States. These consisted of those persons who had purchased a "right" to practice the Thomsonian system.

In the 1st No. of the Thomsonian Recorder is the following call by Thomson, for a National Convention, at Columbus, Ohio, of Delegates from all the Branch Societies:

"I request you to publish a call for a United States Thomsonian Convention, to be composed of Delegates from all the Branch Societies, and where none exist, for the members to assemble and appoint some one or more to attend on their behalf, stating that the call for the convention is in consequence of a wish on my part to see a living representation of my numerous and distant friends, and to concentrate, as it were, the now scattered information, knowledge and talents, the better to enable me the more satisfactorily, and for the greater benefit of mankind, to

complete the work in which I am now engaged, viz: A complete revision and illustration of my Theory and Practice of Medicine, in all its various branches.

"I would recommend that the delegates and representatives be requested to bring all the information in their power, relative to the subject; such as, at what time the practice was introduced into their respective sections of the country; its progress, present standing, number of adherents, etc. etc. Also a sample or description of such plants as may have been discovered to possess medicinal qualities, before unknown, etc. In short, every species of information relating to the subject that would be useful or interesting to know.

"The convention to assemble in the town of Columbus and State of Ohio, Monday the seventeenth of December next, at which time and place I shall, IF POSSIBLE, meet them.

"Respectfully, SAMUEL THOMSON."

At the time designated, December 17th, 1832, the convention assembled in large numbers, and their proceedings, as we find them in the Recorder, are marked with great dignity, unanimity and spirit. At that time the opposition and persecutions of "regulars" was far more bitter and violent than now. Able communications were read from different portions of the United States.—Eloquent addresses were delivered, and an impulse given to Medical Reform that it will never lose. The proceedings occupy sixty-eight pages of the Recorder.

The first time we notice Prof. A. Curtis' name, in connection with Medical Reform, is in a communication from J. J. Estess, of Petersburg, Va., read before the Convention. He says, "Dr. Curtis writes me, that he had one hundred and eight cases of cholera in that city, (Richmond, Va.) some of the very worst type. Many were without sensible pulsation at the wrist, but he lost not one." In the proceedings of the Convention, we find a communication from Prof. Curtis himself, from which we extract the following:

"Seeing the beneficial effects of the Thomsonian practice on a brother and sister of mine, I purchased a right to the knowledge and use of the medicine on the 30th of August last. It taught me a new mode of cleansing the obstructions of the stomach, in which particular I thought it an invaluable acquisition to my former knowledge of the medical qualities of many articles in the vegetable kingdom. I first used the Thomsonian medicine in my own family and among my servants, on whom the beneficial effects in

checking and controling the cholera were so sudden and surprising, that they hastened to spread the information to such an extent as to furnish me, in less than a month, with as much practice as I could well attend to. The speed and certainity with which I cured the cholera, induced many to send for me for every alarming symptom of disease. I soon had to encounter *Bilious* fever, *ague* and fever, *catarrhal* fever, *fits*, rheumatisms, erysipelas, diarrhœa, dyspepsia, and last and worst of all, the pernicious effects of mercury and other mineral poisons, taken by persons that had been supposed to be attacked with *cholera*. Dr. Thomson's anti-cholera medicine, prepared according to his recipe, checked all premonitory symptoms, and aided much in restoring the vital heat in patients before I could bring No. 1 and No. 3 to be used successfully. The number of persons relieved was more than two hundred. Not one died whom I attempted to cure, though, for humanity's sake, I gave a little medicine to two men in a collapsed stage of cholera, who were supposed to be dying, whose spirits shortly fled. Of those whom I cured, more than twenty had a confirmed cholera—I do not mean merely a diarrhœa, for a majority of the two hundred were affected that way. Many were cold, pulseless, and voiceless, to such an alarming degree, that very few physicians would have given them any medicine at all. All except two were cured in two days—several in three or four hours."

Next to Samuel Thomson, no one has done more for Medical Reform than Prof. Curtis. His head is white with the snows of many winters devoted to the cause, and his declining years are full of fruitfulness and of honors. May he long live to witness the triumph of the glorious principles he has labored so faithfully to establish, and to gather new laurels to twine in the wreath of immortality.

The "Thomsonian Recorder," changed only in name, has been continued without interruption from its first establishment in 1832, to the present time. The first two Volumes were edited by Thomas Hersey. In the May, or 17th No. of Vol. 3d, 1835, we notice for the first time the initials "A. C." to an editorial article entitled "Consistency." In the August or 23d No. Vol. 3d, the name of A. Curtis appears as Editor, who continued in that capacity until 1850, when, we think, unfortunately, he resigned it to Dr. E. H. Stockwell. He continued its Editor, however, but one year, when Prof. Curtis resumed its editorship, retaining it until 1854, when he was succeeded by W. H. Cook, who at the same

time was appointed to the Chair of Botany, Therapeutics and Materia Medica, in the Physio-Medical College. In 1838, the name, Thomson Recorder, was changed to Botanico Medical Recorder; in 1850, to Physo-Medical Recorder; and subsequently to Physio-Medical Recorder.

We have devoted more space to this journal, because it has been longer published, more ably conducted, and has exerted a wider influence than any other in the advocacy of Medical Reform. Its pages from the beginning are filled with matter interesting to the profession, to which we would refer all those who may be so fortunate as to have access to them.

The first charter to incorporate a Medical College for teaching the unadulterated principles of Medical Reform, was granted by the Legislature of Ohio, March 6th, 1839, passed by a two-thirds majority, receiving in the Senate a vote of 28 to 4. It was named the Botanico-Medical College of Ohio, and located at Columbus, Ohio. This school commenced public lectures 23d of February, 1836, granting certificates to its students previously to receiving its charter. The first course of regular Lectures under the charter was commenced November 4th, 1839, and continued to March 31st, 1840. The second course commenced the 1st day of April following, and continued three months. Those upon whom the regular degree of M. D. was first conferred, under the charter, after having completed the course of study required by law, are James M. Perrin and Daniel J. Gesh, of *Kentucky;* James F. Wright, of *Georgia;* A. Ward and George Carlton, of *Ohio;* James Richardson and John C. Hughes, of *Virginia;* Hardy W. Hill, of *Illinois;* and George F. Field, of *Missouri.* At present, 1857, the following teachers constitute the Faculty:

D. McCarthy, M. D., Professor of Anatomy and Physiology, and Demonstrator of Anatomy.

J. R. Nickel, M. D., Professor of Medical and Operative Surgery.

A. Curtis, A. M., M. D., Professor of Institutes and Practice of Medicine.

W. H. Cook, M. D., Professor of Botany, Therapeutics, and Materia Medica, and Conductor of Medical Clinic.

S. E. Carey, M. D., Professor of Obstetrics and Medical Jurisprudence.

T. W. Sparrow, M. D., Prof. of Chemistry and Toxicology.

We make the following extract from their Circular for 1857:

TERMS:

"For all the Tickets of the Professors, - - -	$60 00
Matriculation, (first term only,) - - - -	5 00
Hospital (optional) - - - - - -	5 00
Graduation, - - - - - - -	20 00

All moneys to be paid to the Dean of the Faculty at the time of entering, at whose office students should call when they arrive in the city.

GRADUATION.—As we aim at the thorough education of students, we do not confer a Diploma upon any person till it is fully *merited*. Those who have practised and studied for several years, are required to attend one full course of lectures; and others are to attend two courses before they will be admitted to an examination for the Degree of Doctor of Medicine. Students intending to apply for a Diploma, are to make it known to the Dean at the beginning of the term.

Persons wishing Circulars for themselves or their friends, can obtain them gratis by applying to the Dean.

W. H. COOK, M. D., DEAN,
No. 132 Sixth street, near Race, Cincinnati, Ohio."

In 1832, L. Bankston, of Georgia, commenced his career as a Medical Reformer. For native force of intellect, nicely balanced powers of mind, for zeal and integrity of purpose, he has no superior in the ranks of Medical Reform. For a quarter of a century he has been manfully and heroically battling for the beautiful and rational principles of our system; and though surrounded by able and eloquent colleagues in the South, no man's ability and eloquence have done more than his to establish those principles upon a foundation "sure and steadfast." To him are we indebted for the first suggestions relative to a Reform Medical College in the South.

On the 4th of February, 1837, was issued in Charleston, South Carolina, the first number of the "Southern Botanic Journal," edited by D. F. Nardin. Before the completion of the 2d volume, on the 27th of October, 1838, he died of yellow fever, which was then raging, and in baffling which, before he fell its victim, he was eminently successful. We extract the following from the editorial of the Charleston Courier of that date, in reference to Dr. Nardin:

"We take occasion to remark here, that as many as have experienced the benefit of his practice during our late, and still lin-

gering epidemic, should adopt some method of certifying the fact. The public have a right to demand it. If a disease which has all along confessedly baffled the skill and resources of the faculty, has been met and arrested by this, or any other method of treatment, it should be universally known ; and any attempt to smother or impede its adoption when thus certified, no matter in what quarter it originate, or by whatever real or fancied regard to science it may seek to shield itself, is high treason against humanity."

The same paper pays the highest tribute to the talents of Dr. Nardin as a writer, and a practitioner, and to his worth as a man. His writings, which abound in the first volumes of the Thomsonian Recorder, and in his own journal, until his death, are marked by depth of thought, strength of expression, great spirit and zeal for the truths he advocated. Amidst the bitterest opposition from the Allopathic profession, and from the Faculty of the Charleston Medical College, threatened, ridiculed, and persecuted, he raised the standard of Medical Reform, and bore it gallantly and triumphantly over his fallen foes, until he fell a victim to the pestilence whose ravages he had so successfully stayed.

At the close of the 2d volume of the Southern Botanic Journal, it came under the editorial control of William H. Fonerden, and was published in Augusta, Ga., until after the commencement of Lectures in Forsyth, Ga., when it was removed to that place, from which time to the present, it has continued the organ of the Southern Botanico, and since, Reform Medical College of Georgia. It has been ably edited by different members of the Faculty, and has wielded an extensive and powerful influence in the South in favor of Medical Reform. Like its confrere, the now Physio Medical Recorder, it has ever advocated the pure principles of our system, shunning all alliance with everything tending backward towards poisoning and torturing in the treatment of disease, denouncing mongrelism in every form, and ever advocating a pure and sanative medication.

Amongst the earliest and ablest of our Reformers, the name of Moses Griffith stands prominent. After practising in Gallatin, Tennessee, for a number of years, he removed to Augusta, Georgia, in 1831 or 2, and was soon engaged in an extensive and most successful practice. He took an active interest in all the conventions in Georgia and South Carolina, and contributed many able articles to our journals. As Drs. D. F. Nardin, Daniel G. Anderson, Wm. Carlisle, W. F. Barton, A. B. Brown and others, nobly stemmed the tide of popular prejudice, and Allopathic hatred in South

Carolina, effecting the repeal of disgraceful proscriptive laws, whereby it was made a criminal offence, punishable by fine and imprisonment, for any man without an M. D. attached to him, to administer a draught of medicine, even to his suffering or dying neighbor, so Dr. Griffith in Georgia, bravely battled, the leading spirit of his time, with his confreres, until the odious enactments in our own State, were expunged from our statute books. He was one of the first and ablest advocates of a Reform Medical College in the South. Like his co-laborer, Dr. Nardin, in Charleston, he fell a victim to Yellow Fever, after having fully demonstrated the vast superiority of our treatment over that of the Old School, in this malignant disease. He died September 2d, 1839. After treating thirty cases of Yellow Fever, without losing a patient, he was attacked himself, and his constitution being in a very debilitated state, from a chronic nephritic disease, it fell before the destroyer. He remained firm to the last, not yielding to the earnest solicitations of his friends to deaden, by the use of laudanum or morphine, his sensibility to the excruciating pains he suffered in the last hours of his illness. The Board of Trustees of the College, of which he was a member, paid the highest tribute of respect to his worth, in a series of resolutions passed by that body. We are now gathering the fruits, the seeds of which were sown in the early spring time of our cause, by such men as Moses Griffith and others. May we never forget the debt of gratitude we owe them.

The Southern Botanico Medical College of Georgia commenced its first course of Lectures at Forsyth, Ga., on the first day of December, 1839. Its charter of incorporation was granted by the Legislature of Georgia, December 18th, 1839, Charles J. McDonald Governor, and William A Tennille, Secretary of State. The first Faculty were L. Bankston, William H. Fonerden, and Hugh Quin. Two students were in attendance, Jesse R. Ray and George J. Cook. The first regular Degrees of Doctor in Medicine were conferred on Eli Branson, of *South Carolina*, George J. Cook, of *Georgia*, and Jesse R. Ray of *Alabama*, in 1841.

Subscriptions were raised, and a very large building erected in Forsyth. It is built of massive brick walls fifty feet high, eighty feet front, by seventy feet deep, three stories, the upper two fourteen feet between floors. There were three capacious lecture rooms, with other departments for all necessary college purposes. The corner stone was laid with Masonic honors on the 15th of August, 1840; the first corner stone of a Reform Medical College in the world. The occasion was a deeply interesting one. An im-

mense concourse assembled, and they were ably and eloquently addressed by the venerable Hugh Quin, who still, 1857, lives, enjoying a vigorous old age; and standing upon the ramparts of the proud defence he has so nobly aided in erecting around the once youthful colony of Medical Reformers, he can survey the crumbling walls, and the fallen fanes of the once boastful Allopathic hordes. He commenced his address to his fellow-citizens with the impressive words: "THE EYES OF THE WORLD ARE UPON US."—Yes, the time will come, must come, when the laying of that first corner stone of a temple dedicated to *sanative medication*—a temple in which were to be reared a band of heroic youths who should go forth to attack the strongholds of legal poisoning and torturing—will be regarded as an era in the progress of civilization, and a triumph for suffering humanity, and when the eyes of a world, redeemed from the lancet and its congeners, shall be turned in gratitude to that hallowed spot.

Like all great enterprises—enterprises particularly, that oppose the fashions and the prejudices of this world, they were destined to meet with difficulties, and obstacles, external and internal, not a few, the details of which would be foreign to our present purpose. By reverses of fortune, dependent mostly upon what in common parlance are denominated "hard times," the institution became involved, and the building passed from the hands of the board of trustees.

In 1846, by an act of the Legislature, the College was removed to Macon, where Prof. Bankston and some of its friends were desirous to locate it at first. For several years it was sustained chiefly by the labors and sacrifices of its faculty and a few friends.

In February, 1842, the Legislature of Georgia appropriated the sum of $5,000 to the College. With this amount, together with liberal donations from the city of Macon, and from the friends of our cause, the Trustees were enabled to purchase a splendid and massive building, the original cost of which was $32,700. On the 17th of April, 1854, the college was destroyed by fire. With the insurance money, and a liberal donation from the citizens of Macon, it was rebuilt in a style and manner entirely adapted to college purposes; constituting one of the most commodious and conveniently arranged medical colleges in the United States. After the rebuilding, there were remaining nearly $2,000, to which the faculty added another $1,000. This amount was expended in apparatus, preparations, and such other facilities as were deemed most necessary.

In February, 1856, the Legislature of Georgia granted a second appropriation of $5,000. About 4,000 of this has been expended for additional facilities, leaving a sufficient amount in the treasury to procure such new preparations and apparatus as progressive discoveries and improvements may introduce. The Chemical and Philosophical Apparatus was manufactured by James Green, 422 Broadway, N. Y., the best and most accurate maker in the United States, if not in the world, the whole under the personal supervision of the incumbent of the Chemical Department of the College, he having twice visited New York for that purpose.

The Anatomical Preparations, and those for Comparative Anatomy were constructed by Dr. Auzoux, of Paris, and imported directly from his establishment by the Institution. The specimens in Morbid Anatomy were prepared by M. Thibert of Paris. In addition to these facilities in the Chemical, Anatomical, Physiological and Pathological Departments, each branch taught in the College is provided with instruments, specimens and other fixtures for its complete elucidation.

The Institution is now, 1857, in the most prosperous condition. The last graduating class numbered twenty-one. The last two classes each numbered seventy students. Each Session commences on the 1st Monday in November, and closes the 1st of March, following. The faculty are men of experience, faithfulness and ability, and at present consist of

L. Bankston, M. D., Prof. of Physiology and Pathology.

J. T. Coxe, M. D., Professor of Principles and Practice of Medicine.

M. S. Thomson, M. D., Professor of Obstetrics, Diseases of Women and Children and Materia Medica.

I. N. Loomis, A. M., M. D., Professor of Chemistry, Botany, Pharmacy, and Microscopy.

I. M. Comings, A. M., M. D., Professor of Anatomy and Surgery.

O. A. Lochrane, Esq., M. D., Professor of Medical Jurisprudence, and Therapeutics.

TERMS.

Entire fees for tickets to Lectures, - - -	$100
Matriculation (once only) - - - - -	5
Anatomical Ticket, - - - - -	10

Payable invariably in cash advance, at the opening of the session. Graduation fee, payable before examination, $25.

REQUISITES FOR GRADUATION.

Each candidate for graduation must have attended two courses of Lectures in this College, or one in this, and one in some other respectable Medical College, or in addition to one course in this College, he must have been engaged in a respectable practice for at least three years, and must read and defend before the Faculty a dissertion on some Medical subject. All College fees must be settled previously to graduation.

A brief biographical sketch of the different members of the faculty may not be inappropriate:

Lanier Bankston is a native of South Carolina, though he came early to Georgia, where he received most of his education. Having, as before stated, engaged in Medical Reform, in 1832, he soon conceived the idea of a Medical College, in which students might be educated for the practice of the Reform System, the same as those of the Old System were in their colleges. He attended the Session of 1838-'9 in the Medical College of Georgia (Old School) at Augusta, for the purpose of preparing himself to teach medicine in a Reform College. At this time, the particular education of Reform practitioners was opposed by Samuel Thomson and some others. His favorite plan was to make each man his own practitioner, his system being simple and all his remedies safe; but the education of particular individuals for the practice of his system, as well as for its improvement and propagation, is an idea, the practical wisdom of which has been fully established by subsequent events. To carry out this idea, no one has labored more faithfully, more untiringly, or spent more time and money, or made more sacrifices, than Prof. Bankston. A bold and able writer, an eloquent speaker, and a high toned gentleman, he has for twenty-five years stood one of the strongest and most symmetrical pillars in the rising temple of Medical Reform.

John Thomas Coxe was born in Franklin County, Kentucky, in 1813. Having received a thorough classical education, he pursued the study of medicine (Old System) for four years under Dr. Gayle, a distinguished Allopathic physician and surgeon. He came to Georgia in 1838. Having witnessed the successful treatment, by Dr. Samuel Tibbets, a Reform practitioner, in Cincinnati, of a severe case of Hydrophobia, which he had been taught, in the Old School, was incurable, his attention was first directed to the subject of Medical Reform. In 1839, being in the family of Dr. Moses Harris, a Reformer, of Monroe County, Georgia, he

was led to investigate the foundations of the claims of the New System. Finding them altogether tenable, and witnessing almost marvellous cures, he become a thorough convert to the beautiful truths of Medical Reform. In 1842, he entered the Reform Medical College, then the S. B. M. College, as a student, and in 1844 was elected to the Chair of the Principles and Practice of Medicine in the same Institution, which useful and responsible station he has continued to fill to the present time, with satisfaction to the classes and honor to himself. For about seven years, previously to 1856, he was for most of the time, either sole or assistant Editor of the College Journal. He has been a zealous advocate of the truths of Medical Reform, a vigorous writer and an elegant speaker.

Methvin S. Thomson is a native of Perth, Scotland. Having been thoroughly educated in his native land, he came to this country, and in 1836 engaged in the practice of the Reform System of Medicine. In 1838 he was elected to the Professorship of Obstetrics and diseases of Women and Children, in the Reform Medical College. This chair he has ever filled with great ability, enriching his carefully prepared Lectures with the results of his own experience, in a practice more extensive and successful than that of any member of our entire profession. By his success in practice, by his zeal and energy in every capacity, whether as writer, lecturer, practitioner or the man of business, by his urbanity of manner and integrity of character, he has ever contributed his full quota to the advancement of our institution, and to the cause of Medical Reform. By an extensive practice he has amassed a large fortune, and his annual income from this source, has, for a number of years past, been from fifteen to twenty thousand dollars, and is constantly increasing; thus demonstrating what we have elsewhere stated, more than once, that our profession offers unusual inducements to talent, energy and faithfulness. Professor Thomson was one of those, who, early in his professional career was convinced of the importance of a Reform Medical College, and accordingly he drew up the first resolution for the establishment of such an institution, in the Convention at Milledgeville, in 1839. Not claiming to be an extemporaneous speaker, he handed the resolution to Rev. Jesse Sinclair, who introduced it, and advocated it with his usual ability.

I. Newton Loomis is a native of New York. He was educated at Amherst College, Massachusetts. Having been destined by his parents, for the medical profession, he pursued the study for two and a-half years under competent preceptors. Early in

life, having been enthusiastically devoted to the pursuit of Natural Science, his acquirements having been made known to the president of Franklin College, near Nashville, Tennessee, the chair of Chemistry and Natural History was offered him in that institution. It was accepted, and its duties entered upon in June, 1844, and continued until the end of 1847, when ill-health required him to relinquish them. During the Session of 1848-9, he was appointed to the Chair of Chemistry and Botany in the Reform Medical College, which, to the present, he has continued to occupy. In 1851, he attended a course of Lectures in the New York Medical College, Old School. In 1852 he was elected to fill the Chair of Chemistry and Botany in the Metropolitan Medical College in New York City, which he occupied two years, Summer Sessions. In 1853 he visited Europe, for the purpose of studying and attending Lectures in the Medical and Scientific Institutions of London and Paris, visiting hospitals and studying scientific collections. Whilst in London, he was elected an honorary Fellow of the Royal Chemical Society, Royal Geological Society, and of the Linnæan Society. He has been a contributor to the American Journal of Science, (Silliman's,) and to many of the Scientific and Literary Periodicals of our country, Editor of the Scientific Department of the Naturalist, and assistant Editor of several Periodicals.

I. Miller Comings is a native of Maine. He graduated in the Waterville College of that State, in 1836, and removed to Georgia in 1839, and engaged in teaching. In 1843 he graduated in the Reform Medical College, and was elected to the chair of Anatomy and Surgery during the same year. After filling this place with great ability for five years, he moved to Worcester Massachusetts, and was appointed Professor of Theory and Practice in the Worcester Institution, where he remained four years, the main support of that School during his connection with it. In 1852 he was re-elected to his former chair in the Reform Medical College of Georgia, and also to the same chair in the Metropolitan Medical College in New York City, which latter place he filled for four years. As a thorough, accurate and successful teacher, no man in the Reform Profession stands higher than Professor Comings. Next to Professor Curtis, no man has contributed more largely or ably to our Periodical Medical Literature. As a practitioner he has no superior in any profession. As a surgeon, his skill and success in several capital operations have been equal to those of

any surgeon in our land. As a man, a physician and a gentleman, he is one of the brightest ornaments of our profession.

Osborne A. Lochrane was born in Middletown, county of Armagh, Ireland, August, 1829. He was carefully educated by a private tutor, Rev. Edward Hamill, now of Missouri, United States, a man of rare scholastic attainments. Professor Lochrane studied medicine and came to this country for the purpose of practicing. Through the kind encouragement of Judge Joseph Henry Lumpkin, of Athens, Georgia, he was induced to engage in the study of law. He graduated as a lawyer in 1849, and by a special enactment of the Legislature of Georgia, was invested with the rights of citizenship before the regular period had transpired. He settled in Macon, and in 1855 was elected to the Chair of Medical Jurisprudence and Therapeutics in the Reform Medical College. Though, by his talents, he may be better adapted to the profession of law than of medicine, yet we know of no man to whom we would sooner entrust his departments in the College.—An elegant literary scholar, a thorough student, a bold and beautiful writer, and an eloquent speaker, his lectures are not only instructive but pleasing in the highest degree. Our profession have just reason to be proud of his genius, his talents and his zealous devotion to our cause.

In 1848 the Botanico Medical College of Memphis, Tennessee, was established in that city. After contending with, and successfully baffling many difficulties, it is now established on a firm basis, and enjoys a high degree of prosperity. Their building and facilities are ample, their Faculty are men of talent and experience, consisting of the following gentlemen:

G. W. Morrow, M. D., Professor of Anatomy, Physiology and Pathology.

W. B. Morrow, M. D., Professor of Materia Medica, Therapeutics and Pharmacy.

L. D. Shelton, M. D., Professor of Principles and Practice of Medicine.

Hugh Quin, M. D., Professor of Obstetrics, and Diseases of Women and Children.

T. C. Gayle, M. D., Professor of Institutes and Practice of Surgery.

S. P. Cutler, M. D., Professor of Chemistry and Medical Jurisprudence.

The Demonstration of Anatomy will be under the immediate supervision of Prof. G. W. Morrow, assisted by J. W. Phillips, M. D.

Rooms for dissection will be open after the 15th of October.

FEES.

Tickets to the entire course of Lectures,	$80
Matriculation ticket,	5
Graduation fee,	20

In 1849, the Worcester Medical Institution was chartered.—For several years it maintained a very high position amongst the Reform Medical Colleges of our country, but since its departure from the true faith, we have entirely lost sight of it.

In 1852, the Metropolitan Medical College was established in New York City. It commenced its instructions under a charter from the associate Judges of the State of New York; but during the last session, 1856-7, of the New York Legislature, it received a full charter from that body. Its prospects are better now than ever heretofore. Its present Faculty, 1857, are as follows:

H. S. Lincoln, A. M., M. D., Professor of Medical Jurisprudence.

J. D. Friend, M. D., Professor of Midwifery and Diseases of Women and Children.

H. A. Archer, M. D., Professor of Theory and Practice of Medicine and Pathology.

H. M. Sweet, M. D., Professor of Materia Medica, Therapeutics and Botany.

C. H. Coffran, M. D., Professor of Anatomy, Physiology and Surgery.

W. W. Waterman, M. D., Professor of Chemistry.

This Institution has been in successful operation five years.—It is legally incorporated and duly authorized by the State of New York to confer Medical Degrees.

In the selection of teachers, the Trustees have aimed to secure, not only men of high and intellectual attainments, but also those who are well known as firm adherents to the principles of Medical Reform, based on sanative medication.

TERMS.

Fees for tickets to all the Lectures,	$70 00
Matriculation and Museum,	5 00
Graduation,	20 00
Graduates of the Reform Medical College	5 00
Graduates of other Colleges,	10 00

Students desiring further information will address Professor H. M. Sweet, M. D., Dean of the Faculty, No. 182, Sixth Avenue, New York.

But we must bring our historical sketch to a close. It already transcends the limits we had assigned it in this place. In our investigations the material has accumulated to an unexpected ex-

tent. We would gladly introduce many matters which we had originally contemplated, but we cannot. There are many pioneers and veterans in our cause, and many able co-laborers worthy a place in a History of Medical Reform, but we must deny ourself the pleasure of introducing them here. A history of the progress of our system, its improvements, the different works that have emanated from our authors, the various agents added to our Materia Medica, the improvements in our means of cure, and several other matters closely connected with the welfare of our profession, have a claim, but our limits forbid. We had designed saying more of the various Conventions and Associations for the advancement of our cause; we had contemplated an allusion to the enactment and repeal of a series of the most outrageous laws against our practice that ever disgraced the records of legislation, but we must desist.

If what we have written shall enable the reader better to judge of the comparative merits of the two systems, the old and the new, our object will have been attained. Though few may believe it, yet we hesitate not to say, the subject of Medicine, next to that of religion, is the most important that can engage our attention.—The subject of health concerns us all. Without health, we may possess all earthly blessings in vain. If one system, then, by exhibiting poisons, and by employing methods in themselves calculated to sap the foundations of health in the human organism, is dangerous in its tendencies; if it be really true, as Good has asserted, that its medicines have caused more deaths than famine, pestilence and the sword combined; and if it be equally true that the other system, by dealing only in such agents and means of cure as act in harmony with the laws of life, which are innocuous and sanative in their nature, tends to establish the foundations of health, should it not be known?

We but challenge a fair investigation. We honestly and earnestly desire to know the truth. Having looked at both sides of this question, however—having witnessed too the comparative results of the two systems, we are thoroughly convinced of the truthfulness and the superiority of the new. Being thus convinced, the plain dictate of duty is, "cry aloud and spare not," until those three champions of death and torture, poisons, the lancet and the blister, shall be consigned to their merited oblivion, so far as the sick are concerned, and until the noble truths of Medical Reform shall triumph over error, and spread abroad over the world, "for the healing of the nations."

PART II.

PRINCIPLES OF MEDICINE.

SOURCES OF VITALITY.

Under this head it is proposed to bring into view all those agencies which minister directly to the material support of vitality.—To engage in the support or restoration of a principle or force, without knowing upon what it is dependent, would most certainly be anything but scientific, yet we are willing to leave it to the Medical student, whether he has any such an exposition in the practical works of Allopathy.

Owing to the absurd custom which resulted from a blending of Medicine with priestcraft, of discussing vitality as connected with physiology and physic, as a wholly immaterial force or principle, much of the blundering and guess work of Medicine has resulted. This has also been the cause of intelligent Medical men, of late, leaving the subject entirely uninvestigated. And however absurd the idea may be, of a highly intelligent profession proceeding to administer to the direct support of a given force in the animal economy which has been depressed by disease, without ever entering seriously into the investigation of its sources or manifestations; it is not by any means more so than the absurd views set forth by some of the earlier writers, who founded the present theory and mainly the Materia Medica of Allopathy.

The idea that life or vitality existed independent of organization, and that the functions of the body being altogether distinct from this principle, might therefore, depress or wholly obliterate

it, either by too little or too much action, is the main absurdity upon which rests the Allopathic dogma that vascular action when unusually active, is the cause at some stage or other of all forms of disease.

Allopathy, therefore, being erected upon an erroneous view of the very principle it seeks to protect, it must of necessity eventually disappear under the luminous rays of science as the snow is melted away before the rays of the noon-day sun.

We would not be understood as one of those who regard our organizations and their living condition as the mere result of chance, nor as the result of evolving changes in matter, however long it may have existed.

We attribute our organic and living conditions to the will and pleasure of an All-wise Creator. This view of the subject no more separates vitality from the condition and action of organized matter, than it does muscular contractility from the material condition of the muscles, or the solvent power of the gastric juice from the chemical nature of its acids.

In fact, we are bound to regard all material substances, their peculiar forms and adaptation to particular purposes—as fully the direct results of the creative power of the Almighty, as we do immaterial things.

It may also be observed that all the manifestations obtained in this life, whether spiritual or material, are the result of influences brought to bear through material agencies.

Therefore we shall not be accused of materialism when we assert that vitality is the direct result of various forms of matter acting upon itself—producing the necessary compositions and recompositions, and in their proper turn decomposition, eliminating as the result of these, a variable but considerable degree of heat. These material substances being the direct creation of the Almighty, and intended for these and other multiform purposes, it is by no means strange that such should be the results, however far these may be beyond the creative genius of man.

The animal as well as the vegetable kingdom has its stages of generation, maturation and decay. The one is as much dependent as the other upon certain external, as well as internal conditions, for the developments of its several stages. No intelligent physiologist would pretend that the life of the vegetable consisted in anything more than a reception of the elements, carbon, hydrogen, etc., from the earth, water, and the atmosphere, with an adaptation to combine and convert these into the various fabrics com-

posing the particular species. This adaptation, if not wholly, is largely dependent upon surrounding conditions, as a certain elevation of temperature, the presence of light, the relative quantity of certain of the elements destined to compose the structure, etc.—Without these conditions no germ, however perfect it may be, is capable of evolving its ultimate structure as it would be developed under their influences. The same influence may be seen in the development of force in the inorganic world. For example, in eliminating electricity in any form of battery, if the conditions were wanting for such purpose, the experiment fails, no matter how much electricity may be present in the materials. The same may be said in the application of steam to machinery, if the necessary valves, pistons, etc., are wanting, no matter what amount of steam may be generated by the evaporation of water, the wheels of the machinery will not move. So a vegetable germ may lie buried in the ground for thousands of years without giving any manifestation of changing its condition, unless a certain elevation of temperature and degree of moisture be brought to bear upon it, in which event it manifests those conditions called vital. And we might here very justly inquire, is this vitality anything more than the result of a certain combination of the elements, oxygen, hydrogen, carbon, etc., in such manner as to compose and make up what we call the seed or germ, as wheat, corn, etc. These elements thus combined and re-combined, it may be, possess only a capacity in common, or at any rate not dissimilar to that peculiar to many inorganic substances and compounds; for example, that of the acids and alkalies. Should it be regarded more strange that the germ in a grain of wheat when subjected to a certain amount of moisture and heat surrounded by all the necessary materials or elements upon which it may draw, in its subsequent development, should under these influences change its organic condition by chemically uniting additional material and thus presenting a different appearance and structure? Not by any means more strange than that Nitric Acid, no matter how long it may have been kept in a pure state, will dissolve various substances, and form quite different compounds, and these changes will continue to go on, and especially under the influence of heat to a definite termination with as much certainty as the germinating seed will to the maturity of the stalk of wheat. So with the alkalies and acids generally, when brought in contact under certain conditions, will always unite and effect a certain change upon each constituent forming a new compound. So the presence of a catalytic agent will produce mate-

rial changes in a compound without undergoing any change in its own properties. In chemical agents then we have as complete changes effected by both additions, dissolutions and recompositions of elements, presenting all the hues of color, consistency—from the fluid to metallic hardness, and shapes as are found in the vegetable world. But to account for all this, no latent vitality has been invoked as far as we know. Yet the changes are as certain, and as determinate, in purely chemical processes, as the germination of a seed of wheat and its ultimate development into a perfect stalk, the necessary conditions in both instances being present. But in the latter phenomena, a latent vitality has been thought necessary to the explanation; while in the former chemical affinity has been sufficient.

In the seed a certain perfection in the quantity and combination of the elements composing its different organic parts, is of equal importance in constituting its capacity to germinate; as is requisite in the composition of the chemical agent to warrant its certain dissolving, and re-combining powers. So the conditions are as fixed in regard to the germination of the seed, and subsequent growth of the vegetable, as are the conditions requisite in the chemical agents to insure their legitimate changes.

And as the identical elements enter into the one in making up its structure, as into the other, the main difference being, that they unite in different proportions, and occasionally combining some different or additional element, and that heat and moisture are indispensible to the germination of the seed, and that the former particularly, is requisite in the production of chemical changes—we cannot see why an abstract latent vitality should be claimed for the one more than the other, or that a vital entity, or whatever other term may be chosen, should be invoked for the germination of the seed. While such close analogy so abundantly sustains the result, as growing out of—first, the particular combination of the elements composing the seed, fitting it for a subsequent reception of additional elements, and hence a change of form, under the requisite influences: and secondly, that certain natural conditions must always be present, as heat and moisture, to warrant any germinating action whatever: and thirdly, as no latent vitality could ever be invoked without the subsequent changes, and as these changes are equally dependent upon the presence of heat and moisture, as upon the structure of the seed, it would be equally reasonable to attribute the latent vitality to the former as to the latter.

And if this be a correct assumption, whenever this principle is

requisite in effecting chemical changes, such changes would be due to its latent vitality. On the other hand, if the change of matter in the seed is claimed as the vital act, though taking place under these external and supplying influences, we may equally claim a vitality as the cause existing in one or both of the chemical agents that may undergo some very curious and permanent changes when brought in contact with each other under certain supplying influences, as the seed is brought in contact with the additional necessary elements in the water and earth to effect the change of germination and growth by their addition, under the supplying influence of *Heat*.

Therefore we regard the one as natural and as material a result, taking place under as fixed natural laws as the other, the difference in one *law* from another simply being that determinate shapes and conditions grow out of certain conditions and combinations of elements taking place under certain influences, as *Heat* for example; for it is well known that heat will form quite a different compound out of the same elements from one formed without its presence. The only vital entity that may attach to any of these changes or manifestations is the apitude or capacity of the elements and the compounds growing out of their union by virtue of that apitude, and the influence exercised upon these by *Heat*, light, electricity, etc.—all of which aptitudes and influences of the elements, compounds or external agencies,—were enstamped upon them, or made part of their nature and tendency when they were created by Him who spoke things into existence.

But these general doctrines of the sources of vitality of the vegetable may be more fully confirmed by directly investigating the conditions and influences which are essential to the germination and growth of this form of organic matter.

While an elevated temperature is constantly necessary for vegetable germination and growth; it may be remarked, that in this respect we have cold blooded and warm blooded vegetables, for while one species will germinate and arrive to maturity at but a little above the freezing point, others require a temperature ranging from 80 to 110 degrees.

The general fact may be stated, however, that an elevated temperature is requisite, otherwise we might plant our crops in Georgia at any season of the year with an equal prospect of success. The most favorable condition is, to place the seed a small distance under the surface of the earth, leaving the soil somewhat loosely over it, so that the air and water and heat of the sun may

freely penetrate to it. In this condition it is excluded from the light, which seems to be a favorable condition, for the reason that light would decompose the carbonic acid and fix the carbon, a process very essential in the subsequent growth of the vegetable, but would not answer in the germinating process from the fact that the carbon is required to unite with the oxygen drawn from the atmosphere, in the evolution of heat. The first change is an absorption of water which causes the embryo to swell and burst its envelopes; and the nourishment which is requisite to add to its growth, or rather to form the original cells by the agregation of which its growth takes place, is furnished by the starch, etc., of the albumen of the seed. But as this substance does readily dissolve at the temperature surrounding the seed, some additional influence is necessary, and this is found in what is termed the protein compounds, or what is the same thing, azotized products. These produce the requisite chemical changes between the starch and the embryo, or its elements, to give to the former the capacity of acting as nutriment, besides placing the carbon and, perhaps, hydrogen, in the necessary condition to unite with the oxygen absorbed from the atmosphere,—setting free heat and carbonic acid.

Under the influence, therefore, of heat and moisture, chemical action between the elements of the embryo and the nutriment in contact with it, and the oxygen of the atmosphere is produced, and the result of this action is simply a combination of mostly three elements, hydrogen, oxygen and carbon—into vegetable cells, which by their multiplication, form and protrude, the radical which takes a downward direction and fixes itself in the ground; while the other extremity elongates in the opposite direction, bringing the young stem to the surface of the earth, when the primordial leaves expand into the air.

Now, the closer this whole subject is investigated, the more fully may it be seen that the entire dynamical forces are purely physical, and that the conditions involve nothing beyond a simple aggregation of four elements, viz: carbon, oxygen, hydrogen and nitrogen, into an organized structure, subject to be decomposed and converted into a different and vastly enlarged form, by the influence of these forces, unless it be the somewhat strange influence which results from the presence of the protein compound while it undergoes no change in its own structure.

But instead of our claiming for this compound any *peculiar* vitality, it is well known that we have the same character of influence manifested in purely chemical agents, for which no one has ever claimed the least vitality. This influence is termed *catalysis*.

It must be kept constantly in mind in this investigation, that the growth from its very earliest commencement to its termination, is effected exclusively by the addition of a further supply of elements from the atmosphere, and of identically the same character too, of those composing the original germ. The only things requisite to accomplish this being heat and moisture, it seems plain that the whole process is the result of physical forces, as that heat and moisture are essential in effecting changes and additions in ordinary chemical substances, the heat and moisture answering the purpose only of enabling the elements of the original germ to absorb others of like character from the surrounding medium. It matters not whether the heat and moisture be applied artificially or in the natural way,—as is proven by malting, the germinating process taking place as readily when the grain is spread upon a plank as when placed in the earth.

It is not contended that the chemist is capable of combining in the laboratory these elements in the precise manner in which the growth of the vegetable combines them, but that the same dynamical forces which are used in the laboratory in effecting numerous combinations, and varied changes in such combinations are alone called into requisition in effecting germination and the subsequent growth in the vegetable.

The most reasonable supposition which presents itself to our mind why the chemist should not succeed in forming both vegetable and animal structures is, that his knowledge of the ultimate elements, and his control over them, are not yet complete.

It is highly probable that there are some elements entering into these structures for which the chemist, as yet, has found no test, and consequently cannot know of their existence. Such no doubt is also the case with many of the precious stones and many other strictly mineral substances, which as yet the chemist has not been able to imitate, notwithstanding the very great control which this science has gained over the mineral kingdom.

And it is by no means more improbable or unreasonable that Deity should have placed beyond the power and knowledge of man certain of his organizations, in this particular manner, than that he should have done so in some other mode.

Had chemistry arrived at that perfection in which it were capable of composing from the ultimate elements the precious stones and many of the mineral substances, we should then have less reason for setting forth the above supposition. But in the want of such skill we have positive proof of a deficiency of knowledge,

either as to the manner of combination or the elements which compose them, for every one admits that minerals are constructed strictly upon chemical principles.

But on account of this *degree* of supposed ignorance, we should not deprive ourself of the knowledge which has been obtained in regard to the influence of physical forces in evolving and maintaining organic structures. To do so would be little short of setting ourselves back to the old and superstitious idea and practice, which prevailed two thousand years ago, when the priest and the doctor were the same person, and were so from the necessity arisIng out of the theory held in regard to vitality or life. It must appear obvious to every mind, that if we place vitality beyond the reach of physical forces in its evolution and support, as most writers have done, it would be simply absurd for the physician to attempt to sustain it, or invigorate it when depressed by disease, by these same forces, and it will hardly be pretended that he has the power to bring to bear any others.

To further illustrate the influence of these forces, we may proceed to the investigation of the causes and nature of the changes which take place in the growth of a vegetable. In addition to the influence of heat and the presence of moisture and atmospheric air, the two latter for the purpose of furnishing nutriment, and the former a condition essential to its appropriation, the additional influence of light is indispensable to vegetable maturity. There is this striking difference between the animal and the vegetable, for the animal will receive its nutriment as well in the dark as in the light, but not so in the vegetable, light being indispensable for the decomposition of the carbonic acid, setting free the oxygen which escapes into the atmosphere, while the carbon is fixed in the vegetable, supplying the most important element in its composition. And what may be regarded as a little peculiar it is the yellow ray of light which subserves this purpose most actively. This change takes place upon the upper surface of the leaf, and also in all soft and green barked plants, on the surface of the bark.

The essential elements of the plant are carbon, oxygen and hydrogen; hence plants usually present ternary compositions.—Though these are regarded the essentials, the additional element of nitrogen is found in a number of vegetables, and more particularly in those upon which man is accustomed to feed; this element is generally found in the seeds. Many plants also contain more or less mineral ingredients. In fact, by accident or otherwise, the great number that are found in the animal kingdom are

likewise found in the vegetable—though not deemed essential to the vegetable structure.

Without pretending to illustrate the physiology of vegetable life, we may further add that the plant derives its essential nutriment from the atmosphere, while animals subsisting upon the products of plants, they too may be said to be derived from the same element. The carbonic acid which supplies the main element of the vegetable fabric is continually supplied by the respiration of animals, as well as by the decomposition of all organized bodies. This substance exists in the air in sufficient quantity to supply the vegetable kingdom, agreeably to the estimate of chemists, constituting one two thousandth part of it. In the decomposition of this agent, oxygen gas is set free in a pure state; the only natural process with which we are acquainted to supply the atmosphere with this supporter of animal life. The hydrogen, nitrogen and oxygen which enter into the composition of the vegetable structure, are supplied mainly, if not altogether through the rootlets from the earth, being conveyed to the earth by the rains and vapors which collect them from the atmosphere. The act of the absorption and appropriation of these elements, together with such minerals as may be assimilated, taking place directly under the influence of *heat*, moisture and light, the latter, however, only being essential in the decomposition of carbonic acid and the formation of chlorophyl—the green coloring matter of the leaves and other green parts.

These physical forces then, are the essential agents which effect the necessary changes in matter which ministers to vegetable germination and growth. They are the dynamical forces which every horticulturist and agriculturist in the country endeavors to supply artificially when they are not naturally present. Every hot-house is constructed with a special view to the application of these forces, and under their influence when artificially supplied, vegetable germination and growth take place with the greatest freedom.

We have taken this cursory view of the sources of vitality in the vegetable kingdom, because they present themselves in a less complicated condition, while it is an established fact in modern physiology that vitality is referable to the same general forces in the vegetable and animal kingdom. And we may add, for the additional reason, that the human mind may be most profitably instructed by illustrating the more simple propositions, and step by step advancing to the higher and more complicated; and especially when a close analogy runs through the whole series.

Under the view which we have taken of the sources of vitality in the vegetable, a sensible reason may be given why the agriculturist and horticulturist resort to those various means of manuring, and hot beds, when they desire early vegetation; all supplying directly those forces and materials which we have indicated as being the sources of vitality.

On the other hand, were they to act in accordance with that absurd view which still has a strong hold on the mind of a large majority of the world, no such salutary husbandry would ever be resorted to. For while vitality is regarded as an abstract principle or entity, over which natural laws and their application under the accumulated experience of man, can have no influence, it would certainly be absurd in man to make the attempt. We submit the proposition, that if vitality be this entity emanating directly from Deity, if the latter part of the proposition must not follow—that is, that such an emanation has no need of the intermediation of physical forces for its development? The fact is, that while the doctrine of the abstract principle of vitality has been held theoretically, under the false belief that it was materialism to believe the contrary, the practical operations of every farmer and horticulturist in christendom have been a direct contradiction of the doctrine. It is therefore to pave the way for a consistency of action and belief, that we have elaborated so fully the commencement of this subject, and its kindred departments. But it is in regard to animal vitality, and more particularly to that of the species *homo* that this abstract or continuously emanating character of life has been insisted upon. And while the physician with laudable practical skill has been constantly battling against this unreasonable view, he has been chained down to the theory by the dogmas of past centuries, and the still lurking fear of being charged with materialism. But we hold that it is no longer proper that we should continue to render ourselves absurd by the maintainance of such an inconsistency between our theory of life and the practice which we so confidently apply for its support.

Dr. Samuel Thomson, the originator of the crude primary doctrines of the Reform School, was the first medical philosopher who gave the world a true *clue* or insight into this hitherto mysterious subject of animal vitality. He attributed the manifestations of this principle to the animal temperature of our systems; while he taught that this elevated temperature was a result of the combination of certain portions of the food and atmosphere. And while chemical science was not in a sufficiently advanced state at that

day to warrant a full and satisfactory analysis and demonstration of that assertion, its enunciation, and the founding of a practice in accordance with it, were not the less *true* nor important in shaping the direction of subsequent investigators.

Therefore, it becomes us particularly as medical reformers, that while we hold a principle in medical philosophy, to show that it is not only true in itself, but that it is in harmony with all the collateral sciences, and with our ministrations to the sick, the results of which to the common observer, are among the strongest proofs of its correctness.

We believe, too, that Dr. Thomson was the first man who ever attempted to shape a theory of disease and predicate a practice upon a distinct view of vitality and its sources. This we are aware is saying much, but whoever may think it is going too far, we must respectfully ask to produce the authority for a contrary opinion. So far as our reading extends, the various systems of medical practice have been founded mostly upon the supposed nature of different diseases.

It is for this bold stroke in looking at once to the dynamical forces of vitality, and always keeping in view the strengthening of these in his administrations, that Dr. Samuel Thomson stands out prominently as one of the greatest natural Medical philosophers that has ever lived. Many persons, we are aware, who are even engaged in Medical Reform, are not impressed fully with the importance of this and other discoveries of Dr. Thomson, from the fact that he presented, in a literary sense, his doctrines in a simple and crude form, altogether forgetting the fact that discoverers very seldom write learnedly or profoundly.

In fact, the order of mind which leads to elaborate descriptions and literary details, is the very reverse of that fitted to discovery, while the proud eminence of Medical Reform rests mainly upon its being a discovery in its mode of viewing disease, as being a depressed or lowered vitality, and in the harmonious adaptation of its treatment to this foundation truth, and not in its more critical detail of symptoms and prescriptions and formulas, for in this latter particular we have no ambition beyond that freely awarded to other schools of Medicine.

As we have before said, the practice of Medicine must necessarily, in the minds of all intelligent physicians, follow its theory; therefore it is of first importance to secure a correct one. And the fact must not be lost sight of in awarding us our due importance in this particular, that Allopathy, in the midst of her confusion

and errors in theorizing, presents the strange anomaly of teaching a practice without any theory, thereby virtually admitting her practice to be wrong—otherwise, in this enlightened and scientific day of adapting results to principles, it would lead to a correct theory.

Another not less bold assumption of Dr. Thomson, and those who advocate the Reform practice, is the total rejection of all known poisons as Medicines, thereby seeking a totally different effect upon the human system in the cure of disease, from that produced by Allopathic agencies, while we hold, I may add, that many substances in the different kingdoms act physiologically, or at least in harmony with the normal functions of the animal system, increasing in various ways their excretions, secretions, astringing, relaxing, etc., without any injury to the tissues involved, or in other words, by strengthening the sources of vitality.

This proposition, we are aware, is in direct opposition to that strange dogma which Allopathy has infused into the minds, not only of Medical men, but to some extent into that of the public, that every agent in nature acts on animal bodies by virtue of its poisonous qualities. This, it may readily be seen, was necessary to support their *Allos-pathos* doctrine.

This seeming diversion we have deemed necessary in entering upon the investigation of the sources of animal life, as it necessarily involves the fundamental doctrines upon which Dr. Thomson based his system, and upon which the Reform practice has been subsequently maintained.

Were we to let this plank slip from under us, we should be left to the mercy of wind and wave; perchance we might wander into the poison region, and thence into the arms of Allopathy, as some of our pseudo non-principle Reformers have already done.

But without further remarks in this immediate direction, we will proceed directly with our discussion. The sources of animal vitality may be divided into material and dynamical—the first including alimentary substances, water and oxygen. The dynamical include the common physical forces of nature, as *heat*, electricity, light, etc.; the first, *heat*, being the main force upon which the varied operations of the animal system are directly dependent. Electricity no doubt plays some important part in vital phenomena, but owing to its evasive nature but little is known in regard to it in this respect. While light, though all important in the

vegetable growth, has but little immediate influence upon animal life.

We wish it distinctly understood in the outset, that we regard animal life as a principle intimately connected with organization, and not by any means separable from it. In this sense it consists essentially of those phenomena known as vital actions in organized bodies. All organized matter, in its lowest form, consists of *cells*, and in its primordial condition, of a single *cell*. This body consists of a globular form, with membranous walls, containing a fluid of variable consistency. By multiplication from this primary body, all organized structures are formed, from the smallest insect up to the most gigantic oak, or from the simplest animal structure up to the most complicated—that of man.

If we look into the elementary constitution of this cell, either in the animal or vegetable, we find it to consist essentially of the four elements—oxygen, hydrogen, carbon and nitrogen. There is this difference, however, that while the one is ultimately destined to constitute the vegetable structure, the other proceeds to develope the more complicated animal—each one maintaining in every essential particular the likeness of its parent.

This capacity to multiply itself into the various organs and members, is a peculiarity with which the primordial cell of each pecies of vegetables and animals was originally endowed, is perhaps not more strange than that the sulphate of quinine should form itself into chrystals, or indeed of thousands of other forms in which matter presents itself in its mutations and formations, the main difference being that we have a greater control over, and familiarity with, some, than with others.

The main question in this investigation, to the physician, how ever, is, are the primary elements formed into organic animal structures, and maintained thus under the influence of forces which he can at will modify and control? And if so, what are those forces? Should it be decided that the physician has no control over such forces, it is plain that we might as well give up our profession and engage in some other pursuit. But on the other hand, should we have control over such forces, it must be apparent to every one that we should know of what they consist; and he who neglects to acquire such knowledge is culpably ignorant of the best interests of those whose lives may be submitted to his care.

To us the proposition is a plain one, that the forces of nature, usually called the physical forces, as heat, light and electricity, are intended to subserve the special purpose of operating upon

matter in a way to maintain that condition of existence which should fulfill the purposes of Deity. Just to the extent that we are enabled to control these for our benefit or injury, are we free agents, so far as respects material things and conditions. This control, however, it is well to remark, is a limited one by virtue of the limit which is placed upon the integrity of all organized matters. But for this limit the perpetuation of life would be the result of our skill.

There are certain functions constantly maintained in the living animal body, which are denominated vital, in contradistinction to others which are termed merely physical. Such are the fibrination of the blood, the contraction of the muscles, the action of the nervous system, etc., and these have been supposed to act or form under a different influence from that of the physical; and this influence, or these forms, have been termed vital forces, and to many minds taking them entirely from under ordinary physical forces.

But if we examine this subject closely, we shall find reason to regard them as but secondary actions resulting from previous forces which had organized certain structures which, in their turn, by virtue of such organization, had been enabled to develope these vital forces. For example, one of the main processes of digestion is that of the gastric juice acting upon the food in the stomach, which is now known to be purely chemical in its character, and if we trace this process further, we find the substance of the chyle being taken up by an endosmose action, which is likewise regarded as a directly physical force. (See Dr. Draper.) And these, constituting two of the steps in the formation of blood, or the fibrine of the blood, must be regarded as essential to that further elaboration and fibrination, which latter is regarded as a vital act. Now to our mind the subsequent changes are as much the natural results of the first mentioned, as that the decomposition of animal flesh from the action of nitric acid when brought in contact with it, is a subsequent result of those chemical combinations necessary, and which actually take place in the formation of the nitric acid.

That they are very properly called vital, and thus separated from the cruder and primary forces, we readily admit; for thus the attention of the physician is called to those forces, on the combined action of which the life of the individual is more immediately dependent. And in further confirmation of our position, it may be remarked, that the physician in using his skill for the maintenance of most of these, has to resort to such stimuli as will ex-

cite the more simple physical functions of the body, with the ultimate view of strengthening the vital.

It must not be assumed by our readers, from the self evidence of this proposition, that all physicians subscribe to it, and that Allopathy has long since taught it, for such is not the fact. And it is mainly owing to the want of such instruction that Allopathy has been so long "groping in the dark," and until she adopts it, must forever keep there.

So far as we are advised, Dr. Samuel Thomson was the first to indicate such a theory; and though the readers of his medical writings may say that they find no such doctrine in his books, we are free to admit that it is not thus elaborated, but to our mind it clearly grows out of his fundamental ideas of life and action in the human system, and consequently clearly constitutes a part of his system, though it may be elaborated a thousand times by abler literary pens than either his or ours.

We may now proceed to point out the main force which evolves and maintains animal organization and life, which is *Heat.* Though we are well aware that other influences and conditions are essential in making up the active living condition, it is equally certain that while an animal may live for a time when deprived of them, such is not the case in regard to heat. Its continued presence is indispensable, or life immediately ceases. And it may be further observed, that the benefit derivable from the various supplies of food and atmosphere, and of other forces, as electricity, etc., are constantly dependent upon the presence of heat. Its influence upon the animal system has been aptly compared to the primary motive power of a cotton mill. (See Carpenter's Physiology.)—While we pass through the different apartments of such a mill, we are struck with the great diversity of processes which present themselves to our view, as necessary to convert the raw material into a beautifully woven fabric. Yet if we had seen such a mill for the first time, if at all ingenious, we should naturally recur to the primary cause of dynamical force upon which this complicated and diversified action was dependent; and every one is familiar with the fact that we should be shown one great wheel moved by water, or perhaps the influence of *heat* upon water—and that these multiform processes were all dependent upon the motion of a single wheel. Thus the dynamical force of heat operating upon and through the organic structure, and the materials supplied to it to be acted upon, is the one primary force upon which all others, however multiform, or by whatever name known, are dependent.

Whether we regard this or that action in the animal economy vital or physical, simple or compound, or whether we may consider life as an abstract or superadded principle or otherwise, the effect of the withdrawal of this primary force Heat, is the same—they all cease to manifest themselves as connected with the organization; the physical force, the vital, and all the manifestations of life, may as well be sought in an ice-berg as in an animal body deprived of heat.

A further phenomenon of much interest, and one that adds additional force to the argument we are pursuing, is the fact that in several of the more essential physiological actions of the animal system, *heat* is one of the constant and necessary results. These changes, too, take place mostly in the penetralia of the tissues, thus affording that equilibrium of temperature so essential to the well being of the animal. The free evolution of animal heat, then, being dependent upon nutrition, disintegration, etc., its free evolution necessarily involves the action of these other important functions; and for this reason medical men who are interested in opposing our theory, are prepared to refer all the benefits to that source. But the fallacy of this position, and correctness of our views, are shown most conclusively by reference to Chassat's experiments upon pigeons, for when the birds were so far exhausted by inanition as to be unable to fly about the room, or even move, the elevation of the temperature of the room restored them to a state of activity. And if the elevation was maintained, and food given, the birds were restored to a state of usual strength; but if the temperature of the room was lowered, although the food might be given, no such returning strength was observed, but on the other hand they lingered and died; thus proving conclusively that a certain degree of animal temperature, though supplied artificially, is essential to the maintenance of the digestive and other ordinary functions, and of the life of the animal.

This fundamental doctrine settled, and it is easy to see the indispensable necessity of a due regard to the maintenance of a normal quantity, and of an equilibrium of the animal heat in all cases of disease.

It is by no means sufficient that heat shall be present in particular parts of an animal body, while it is deficient in other parts; for if heat is essential to the life of one part or tissue, it must be equally essential to every part, even to every fibre and cell in the body; therefore an equilibrium is indispensable. Much injustice has been done our theory and practice in this particular, both

through ignorance and design; for while we have maintained the general doctrine that in disease generally there is a diminished animal heat in certain parts, the fact of the presence of fever has been taken as a complete refutation of this view; the objector forgetting that heat might be present in certain parts, even to an abnormal height, while its inequilibrium prevented its presence and appropriation to other tissues or parts. Such is proven to be the case in our ordinary autumnal fevers, by the fact, that under a highly stimulating treatment, both internally and externally, the disease disappears, and the patient is restored to a state of health. Or the same result may be produced by such agencies as will equalize the heat, which may be superabundant in particular parts.

There are natural modes of supplying heat to an organized body, and though when artificially supplied it often answers a valuable purpose, and in many instances saves life, still the natural mode is the only one which can for any great length of time sustain animal life; and it is upon this mode of supply to every and the smallest part of the body, that our theory claims a state of health to be dependent.

The sources of life, then, may be summed up as consisting immediately in the organic conditions of the primary elements brought into action under the influence of *heat*, the capacity of these elements, however, to organize even under this influence, being originally dependent upon the will of the Creator of all matter, who enstamped upon them this peculiar capacity, and its maintenance up to the present time being likewise dependent upon a continuance of that will. Animal life, then, is but the result of the will of our Creator. But what we particularly insist upon is, that *He* chose material matter through which to develope and make it manifest to our senses; and that upon the completeness of such organization, under the influence of the dynamical agent, heat, is its manifestation as much dependent as is the action of the steam engine under the same influence. And the one result is as emphatically the result of the will of our Creator as the other. For it cannot be denied that the peculiar properties of the elementary material out of which the engine is constructed, and upon which the ability of man to construct is predicated, are alone dependent upon the Creator of such material. And the capacity of heat to convert water into steam and expand it, is likewise alone attributable to His supreme power. And it may be added, one equally wonderful and mysterious as that of human life resulting from the action of certain organizations, un-

der the influence of the same principle. We, as well as all other matter and manifestations, organic or inorganic, are but the result of Divine wisdom and power; and the production of the simple rock, or that of the simplest chemical affinity, is equalty mysterious with that of the formation of the most complicated animal, man.

These remarks have nothing to do with our condition in a future state of existence; for medically we are alone called upon to trace the forces and manifestations of vitality or life in our present condition.

And further, it is a matter of very serious question, whether our present state of vital manifestations, as connected with and being dependent upon organization, external stimuli, etc., will constitute any portion of our future condition. If so, the humblest worm that crawls, possessing the same living principle, and of the same character, might be equally transferred to a future condition.

The confusion upon this subject, we apprehend, has been the want of discrimination by the theologian, between a mere animal vitality, which pertains as fully to the lowest as to the highest species, and what truly constitutes the soul of man. The fact that man, so far as we know, is the only responsible animal in a future state, and that he has superadded a capacity which is no where found in the lower and irresponsible grades of animate nature, should, it seems to us, be sufficiently indicative to distinctly point to the immortal part of man. Still we would not wish to be understood, that this principle is capable of manifestion to finite beings other than through organization under the influence of heat. Yet this principle is no part of the life of the animal, for a goose or an idiot is as completely alive as the most intelligent of our race. In fact, we can but repeat what we have previously said, that all things in this existence are ministered to, maintained and educated, whether spiritual or material, through divinely appointed material agencies.

But to return to a medical view of the subject. We are bound to study the active and living condition of animals, as we would study the active condition of a complicated machine. In the varied operations of the machine, it would be easy to see the importance of keeping each part in a free and sound condition, and that the irregular action of a single wheel or valve would disturb the general results of the structure. So it is easily seen by the anatomist and physiologist that the least defect of a tissue or organ, or an obstruction of a function, will disturb the general action of

the human system. It is well known that the manifestations of vitality may be weakened or increased at the pleasure of the physician, under ordinary circumstances. And it is alone owing to this control that the physican can be of the least service in the treatment of disease. In this view the physician has the same control over the life of his patients as the engineer does over the engine; and were the one kept with as great care from accidents and abnormal influences as the other, the continuance of the active condition of each might with equal certainty be maintained until worn out.

Under this view of animal life the physician has something tangible to study; but under the Allopathic doctrine (derived from the priesthood of the dark ages) of regarding life as an abstract principle, independent of organization or of any material agencies, the principle was evidently beyond his ministrations. For this reason too, we suppose Allopathy has ceased to speculate in regard to the sources of vitality, leaving the young tyro to strike in the dark, as it were, with his heroic means, as calomel, the lancet, digitails, etc. And thousands of individuals are walking monuments of this want of discrimination of the Allopathic profession in regard to what is calculated to promote and strengthen vitality, and what to depress it. All this is the result of a want of a disdistinct idea of the true socrces and manifestations of vitality.

MANIFESTATIONS OF VITALITY.

It is essential that the physician fully understand the manifestations of vitality, as each one of these manifestations makes up in part the complete living or healthy condition of animals. And as one or another of these may be depressed by disease or medical treatment, the life of the patient will in the same ratio be diminished. And it will hardly be called in question by any physician of experience, that the great objection to what is called the *heroic* treatment, and indeed all poisonous treatment, is the constant tendency of such means to depress some one or other of these manifestations. And even under a sanative and physiological treatment, when the system has become loaded by the accumulation of morbid matter, much sound discrimination is necessary in its removal to prevent an undue depression of some one or

more of the vital functions. This may be done by simply overtaxing any given function in the removal of such accumulations; hence much care is to be exercised in invoking the aid of numerous functions for the performance of such service. For example, in protracted and debilitated cases, it would be dangerous in the extreme to attempt to cleanse the entire system by purgation alone, or by urination alone, or by vomiting alone; neither would it be proper to seek its removal by the skin alone; for the vitality sustaining each of these functions is essential to life, therefore the exhaustion of either one by over action would prove fatal; while, if each is called upon to perform a part of the service, any reasonable amount may be removed to the manifest elevation of the vital powers.

This mode of exhausting the vital functions, it must be remembered, is quite a different mode of injury from that of poisoning, though both processes will ultimately result in the same thing, death. The poisoning process deranges and breaks down the organic structure of the tissues by means of chemical affinities, while the sanative agent, imprudently used, only exhausts the functions, as too great exercise would do, even in health. But when the poison belongs to the *heroic* class of agents, as calomel, it has the peculiar disadvantage of operating in both these ways, and becomes extremely hazardous in all greatly depressed conditions.

From these considerations, it will be seen that to attempt to practice medicine without the clearest possible view of the manifestations of vitality, would be a most reckless and unworthy assumption on the part of any one.

And the "truth of history" warrants us in saying, that in no school of medicine with which we are acquainted, is the importance of this investigation urged with half the earnestness that it is in the Reform schools. Allopathy is compelled to keep this subject out of view to a large extent, or convince her pupils that the poisonous and "*heroic*" portion of her medicines is destructive instead of curative in its tendency.

Reformers we hope will ever consider this investigation of the greatest importance, for as well might the mariner attempt to navigate the seas without his compass, as the physician to attempt to heal disease without these fundamental landmarks of cure.

In determining those changes and actions in the animal system which physiologists have denominated vital, we have no other

guiding principle with which we are acquainted, than their dissimilarity to those changes which may be wrought upon similar materials by ordinary chemical and physical forces out of the system; and that under their influence the more highly formed and essential fabrics of the animal system are composed, and the more immediately essential actions to animal life maintained.

It is well known that a portion of the changes necessary to sustain life are very similar, if not exact counterparts of what may be produced by simple physical and chemical forces—such for example as the mastication and chymification of food. These, therefore, with all that may fall under this catagory, are not regared as vital processes, however indispensable they may be in sustaining animal life.

It may, therefore, be concluded that our discrimination into vital and non-vital forces is merely the result of our ignorance of the character of the materials, or forces, or both, which minister to the vital processes. For it can hardly be a question with our present enlightenment upon this subject, whether all the *compositions* and actions of the living animal body are the results of chemical and physical ferces operating upon the materials out of which our systems are formed. In this sense, then, all the processes essential to the maintenance of animal life are vital; and this is strictly true, whether the processes may be imitated in the laboratory or not.

But notwithstanding this general fact, it is well, in a medical view, to keep up the distinction of vital and non-vital forces. For some of the actions and forces, and changes, are more immediately essential to the support of life than others. For example, the animal will die in a few minutes if the circulation of the blood be stopped, or if the nervous influence be paralyzed, while it might live for days or weeeks under a suspension of the digestive process. Therefore it is necessary that the physician should have impressed upon his mind the greater importance of keeping a more constant and vigilant watch over the one than over the other. For these and other obvious reasons we shall discuss this subject, after what has already been said under the old nomenclature which recognizes certain functions as vital, in contradistinction to others which are not.

A somewhat singular phenomenon which is not generally noticed and insisted on by physiologists in the operations of vital power, is the fact that one vital force generates another; showing

most conclusively that these evolutions are but the results of the correlation of the physical forces of nature. For example, nutrition, which evidently involves vital force, evolves animal *heat*, upon the presence of which all others are dependent; muscular contraction, secretion, etc., are likewise dependent upon nutrition; and even nutrition is dependent upon the circulation of the blood, which some have regarded as a vital act; and the circulation of the blood too is dependent upon muscular contraction of the heart. Thus there is a mutual dependence among the vital forces one upon the other; all, however, falling back upon the great primary affinity and result of the combination of oxygen and carbon in setting free *heat*.

Heat, then, is the first great principle, of not only vital force, but dynamical force, to all others occuring in the animal body.—Respiration, by some, is regarded as a vital action, by others as a physical. Its results are evidently vital to the system.

Nutrition, secretion, and disintegration, are likewise, in my judgment, entitled to a like position. Muscular and nervous action are very high manifestations of this force. That peculiar selecting power on the part of different tissues to appropriate food suitable to their own growth, while they reject all others, must likewise be classed as a vital act. The process of calorification, the fibrination and coagulation of the blood, are also vital acts.—And the presence of the *vis-medicatrix naturæ* in increased force in certain parts as a resistance to disease, must be regarded as a very high manifestion of vital force. And we think we cannot go far wrong in classing ciliary action among these forces.

The manifestations of *heat* in the animal system are abundant and easily distinguishable. By the ordinary sense of touch we may easily satisfy ourselves of heat in the animal body above that of the surrounding atmosphere, at ordinary temperatures. The application of the thermometer too, the surest test, indicates a temperature of from 98 deg. to 100 deg. as the medium warmth of warm blooded animals. The manner in which this heat was generated, or set free, was long a subject of guess-work and mere speculation by the medical and philosophical world. The two most favored theories being by friction and by nervous influence. And this uncertainty and ignorance remained, up to the time that the immortal Thomson, the founder of Medical Reform, solved the difficulty. As we have before stated, he asserted that it originated from a combination of the food and the atmosphere; and as one of the proofs of his assertion, he instanced the well known fact,

that when digestion was perfect, heat was eliminated with more freedom, and the general health of the system promoted thereby. This discovery of Dr. Thomson, and one intimately connected with the whole theory and practice of Medical Reform, is to my mind one of the proudest trophies belonging to our profession, and should be maintained as specially ours, with as much tenacity as the use of lobelia, or as that peculiar combination of curative agencies constituting a course of medicine. And while this latter, so far as we know, has never been denied as originating with Dr. Thomson, it did not more certainly do so, than the mode of the generation of animal heat, as understood at the present day, in so far as the main and essential facts are concerned. The general assertion, and the building of a theory and practice upon the truth of it, to a great extent, can leave no question as to the prominent position which he gave to this discovery. In illustration, I will call the attention of the reader to Thomson's general position, that *heat* was the supporter of life, and that its general depression constituted a diseased condition. Or to reverse the statement, that all forms of disease were attended with diminished animal heat; and that the restoration or elevation of the temperature was the proper mode of restoring health. Therefore, as the animal heat must be increased in order to cure the sick, it becomes a matter of first importance to ascertain how to do this, both temporarily and permanently; thus originating in the mind of Thomson, as any one may satisfy himself who will read his Narrative and Guide. The necessity of knowing how this animal heat was generated, and the result of his inquiries, was, as I have previously stated, that it resulted from a combination of the food and atmosphere, after the former had been fully digested, as he subsequently shows that digestion was essential to its generation.

Now will the most skeptical and bitter enemy of Reform pretend that after thus describing the mode, in general terms, of its generation, and then proceeding with a great deal of labor and inquiry to ascertain what agents were best calculated to sustain this *heat*, and illustrated by his remark in regard to pepper and ginger, that they were two of the very best agents for this purpose, that Dr. Thomson did not make this discovery, or that he did not understand what he was talking about, or express himself sufficiently plain to be understood by others? We may add just here, that the Allopathic profession throughout the United States understood the doctrine very fully for purposes of sarcasm and ridicule.

But this mode of the generation of animal heat is now gener-

ally received throughout the medical world; and the simple question arises, did Allopathy filch it from us, or have we received it from Allopathy? If Allopathy received it from Reform, she has stolen it, for she does not acknowledge any such source. She refers its discovery to the brain and the laboratory of Leibig.

The further question arises, shall we as a profession tamely submit to be robbed of all our discoveries, and then be rejected by public opinion and medical restriction, as a class of boastful empty pretenders? Or shall we assert or litigate our rights to our own property as any good citizen would do?

For ourself, we are determined to maintain what belongs to us; and in a physiological and scientific view, there is no one of Dr. Thomson's discoveries, or those of Medical Reform, of so commanding interest as this. And even in a practical point of view, it lies at the very foundation of a philosophical practice. Yet strangely have our profession slept over this subject, both as to its discovery and its importance.

Much of this indifference, we are aware, has been owing to the inexcusable stupidity of Horton Howard, in discarding entirely from his medical works this discovery of Thomson, and substituting the old dogma of friction.

In further confirmation of what we have said of Dr. Thomson, as the discoverer of this most important law in Physiology, it is only necessary to state that Thomson's views upon this subject were in print, and in the hands of thousands of persons, from twenty-five to thirty years previous to the investigations of Leibig upon the same subject; and that Dr. Thomson's works were not only conveyed to England from this country, but they were reprinted in that Kingdom with but slight modifications, at least ten years previous to Prof. Leibig's publication upon this subject. And whether it be a fact that Prof. Leibig's attention was turned in this direction by reading what Thomson had written upon the subject or not, it is at any rate a reasonable inference that he did. To say the least of it, but few men of Prof. Leibig's reputation would be willing to be regarded so far behind in matters of science as not to have read a new system of medicine, which had been sufficient to arouse the medical profession throughout the United States to secure the passage of laws in nearly every State in the Union for its suppression. But so far as the question of discovery is concerned, it is sufficient that Dr. Thomson published his views upon the subject some twenty or thirty years previous to any one else. While upon the subject of animal heat, we have thought this much

in defence of our right to the discovery of the mode of its generation, and to its importance in indicating a correct treatment, necessary, for strangely enough, so far as we have observed, our pen is the first of late years to have written a line upon the subject.

There are several distinct functions which are concerned in setting free animal heat; though they mostly involve the fact of the union of the oxygen of the atmosphere with the carbon of the food, and mostly dependent upon it. First, it is supposed by physiologists that these elements combine to a limited extent, in the vascular system, while circulating throughout its vessels. Secondly, the act of the appropriation of the particles of nourishment to the tissues is supposed to promote combustion between the carbon and oxygen, and thus set free a small amount of heat. And thirdly, the disintegration of the tissues evolves a large amount of heat. And fourthly, we may add, in our judgment, a large amount of heat is set free in diseased conditions of the system, by direct decomposition; a process taking place under altogether different influences from those promoting disintegration. Although it has long been well known that decomposition sets free heat, whether it be in living or dead bodies, it has not, so far as we know, been applied to the explanation of local accumulations of heat in diseased conditions. In explanation of the first mode, we may remark, that in the reception of the atmosphere into the lungs, an important change of gases takes place; carbonic acid and nitrogen are freed from the blood and expelled from the lungs, while oxygen and nitrogen are freely received; and to both these circumstances, perhaps, may be referred the great change which takes place in both the color and properties of the blood in the lungs.

Yet it must be evident that something more than a mere separation of the carbonic acid and the reception of the oxygen and nitrogen must take place, or we should not have so marked a change in the color and properties of this vital fluid. The inference is that an exchange founded upon chemical affinities must take place, the oxygen and carbon having a sufficiently strong affinity for each other, to set free or drive off the cabonic acid. This affinity necessarily involves such a combination as will produce a limited amount of heat, while the process of slow combination and combustion continues throughout the arterial and capillary circulations, between the partially free oxygen and carbonaceous matter of the blood. In this way, animal heat is produced to a limited extent, and is the most simple and direct mode, only requiring a due supply of oxygen from the atmosphere, and the

properly elaborated condition of the carbonaceous matter of the food, this latter condition absolutely requiring a reasonably perfect condition of the digestive process, otherwise the necessary elaborated condition of the carbonaceous matter of the food cannot be present in the blood. Hence, if digestion is suspended, or measurably so in all serious forms of disease, Dr. Thomson very justly comes to the conclusion that there must be a diminution of animal heat. At least its generation in the normal mode is materially diminished; and supposing it not to be increased by abnormal means, it would in fact be diminished in quantity. The idea at least is sufficiently suggestive to show the philosophy upon which Dr. Thomson founded the opinion. And when we take into consideration the practical fact that the restoration of the natural modes of its generation are the only possible consistent means by which the abnormal mode of its production may be checked—that is the decomposition of the tissues stopped—it is most evident that the practical, as well as philosophical view, is correct, though the literal meaning of the language used may be at fault.

It is well to observe that this more simple and primary mode of the generation of animal heat, lies at the foundation, or is a prominent lever power to the subsequent and more complicated modes of its generation. This is clear from the dependence of nutrition, disintegration, etc., upon that warmth and other conditions of the blood connected with and dependent upon this first mode of the evolution of heat.

In the nutrition of the different tissues of the body, it is believed that a small amount of heat is set free. It is well known that in changing from one form to that of another, organized matter frequently sets free heat, and in this way it is highly probable that heat is evolved by the function of nutrition. In this view we are limiting nutrition to include only the deposition of the nutritious matter of the blood upon, and its incorporation into, the respective tissues, and the changes necessary to constitute it part of the tissues, endowed with all the necessary conditions of the living activity. This, it may be remarked, involves a succession of changes from a lower to a higher condition of organized animal matter. And although the general rule is, that as we ascend in complication or refinement of any structure, the greater the dynamical force necessary for its production; yet in animal organization this force is to some extent furnished by the very changes occurring in the function. One of the most striking examples of nutrition setting free heat, is found in the germination of vegeta-

ble seeds. For here, so soon as the germ commences expanding, heat is more or less evolved. This is strikingly seen in malting, and is evidently produced by the union of oxygen from the atmosphere with the carbon contained in the germ.

But in the third mode mentioned, we have directly the reverse condition of things. All the changes taking place tending to reduce from a higher to a lower form of organization, or of matter. In changes of this character we have abundance of evidence to show that the heat is always set free. For example, dead animal bodies in decomposing in the atmosphere, always give out heat. In vegetable decomposition likewise, heat is freely given out. This may be demonstrated in applying moisture to a sufficient quantity of cotton seeds, corn, wheat, or any other grain which will rapidly decompose. The *hot-beds*, too, which are resorted to for early vegetation, are but another demonstration of this principle.

Then we have no doubts in regard to the disintegration of the system setting free animal heat; and that too, in proportion to the rapidity of the disintegrating process. It may be remarked, too, that those tissues and organs required to perform the greatest amount of action, are those which are most rapidly disintegrated; hence the necessary amount of heat to maintain the action is supplied by each organ, by virtue of the changes taking place within itself. This may account for the equilibrium of heat throughout the system.

But a matter of the deepest interest in this investigation is to determine and keep distinct another process which is very similar in its nature and appearance, but which is called into action only in the abnormal condition of the system, while disintegration may be going on either in a diseased or healthy condition. This process is called *decomposition*. This is a distinctly different process from that under consideration, and is called into action by quite different forces, although its tendency is to remove the solid matter of the tissues, and in doing so sets free a large amount of animal heat. This in part constitutes fever heat. And the process itself tends to the destruction of entire tissues and organs; while disintegration is one of the appointed changes necessary to the maintenance of the same in an active and healthy condition, by making way for the supply of nutritious matter.

It is a universal law in animal organization, that a continual change must be going on in the particles of matter composing it; the old and worn-out materials being as necessarily removed as the nutritious matter is deposited. And the rapidity of this change

in the different tissues holds a constant ratio with their healthy activity. This change is promoted and carried on under the influence of the vital forces, as fully so as nervous or muscular action, and indeed being one of the results of those actions; and in the system generally, it may be regarded as the result, or one of the results, of the action of any or all parts of the body—while decomposition takes place from a directly reverse state of things, the want of action. And it is likewise promoted and carried on by different forces. Disintegration being the result of vital or vito-chemical forces, while decomposition is the natural result of those simple physical and chemical forces that exists between the atmosphere and dead organized matter. Or it may take place in the structures which seem to possess a lingering spark of vitality, or what is synonymous, healthy action. The action or vitality must always, however, be weaker than the physical and chemical forces alluded to. Thus it may be seen that decomposition very materially differs from disintegration, taking place under a very different state of things, brought into action under very different forces, and attended with very different results to the integrity of the system. The one being a constant promoter of health, while the other not only destroys all health, but reduces the entire organization to its original elements. Yet each is attended with the evolution of that great dynamical supporter of vitality, *heat*. The ordinary elevation of heat in disease, known as fever and inflammation, is mostly attributable to this mode of setting it free. Decomposition does not by any means require the dissolution of whole organs to prove its presence. Wherever action ceases in the capillary vessels there decomposition will supervene; frequently dissolving away but parts of the structure, as the areola tissue from among the muscular fibres; or in the glandular organs dissolving one granule, while the adjoining one, in which there may be a more free circulation, maintains its integrity. Thus the heat of local inflammation is produced. And in such cases the great matter of difficulty and distress is not so much the presence of too much heat, as the want of vital action in the functions of the part. This is abundantly demonstrated by the relief afforded by stimulating lotions, fomentations, warm baths, etc., all calculated to communicate still more heat, but also to re-establish the functional activity of the part.

The want of this discrimination has produced all the wild speculations upon fever and inflammation by Allopathy, and the far worse than wild practice which continues to characterize that school of physicians.

Disintegration then should always be promoted as one of the main means of supplying that necessary amount and equilibrium of heat, while it at the same time conveys away that worn-out product resulting from the action of the different tissues in the animal body; while decomposition should always be resisted, unless it be upon absolutely dead parts, as tending to produce an inequilibrium of heat, and a further resistance to functional activity, and finally to the total destruction of animal organization.

Disintegration being intimately connected with all the higher, as well as the universal functions of the animal body, will require such agencies for its promotion as increases all the vital manifestations, while its free action supplies to a large extent that dynamical force upon which they are all dependent. And this is but another beautiful illustration of the intimate connection and dependence of one function upon another, and of that correlation of forces which operates throughout and promotes those wonderful changes and active conditions of animal bodies.

The necessary amount of carbon and oxygen which enters into the structure of the different tissues of the body, in the act of disintegration, is freed from the forces which held them in combination with hydrogen, azote, etc., in the form of muscle, gland, nerve, etc. And in this freedom of action, these chemical affinities bring them into combination; and combustion, carbonic acid, animal heat, etc., are the results. This is one of the modes in which disintegration ministers to the evolution of animal heat. Another mode which may perhaps be invoked in this case, is the change of condition which takes place in the conversion of the more solid and completely organized tissues into a fluid and partially disorganized condition. A change of condition in the laboratory is known to produce heat, without any combination of oxygen and carbon, and we therefore feel warranted in the supposition at least, that such may be the case in organized structures, from the changes constantly taking place in them. For example, metalic arsenic, manganese, and other metals let fall into chlorine gas, will ignite spontaneously by the union of the two. Iodine and phosporus combined will do the same thing.

There can be but little doubt that the changes of matter and combustion connected with the act of disintegration, furnish the the larger share of the elevated temperature of animal bodies in a state of health.

Decomposition being the last and fourth means by which animal heat is set free, and having considered this in part, in contra-

distinction to disintegration, it will not be necessary to add much more upon this subject.

That all organized matter, when deprived of that action upon which its living condition is dependent, is subject to be dissolved and reduced to its primitive elements, is a fact which needs no argument to substantiate. This dissolution, especially when taking place rapidly, as in the case with all soft animal structures under a high temperature, is termed decomposition; and as previously stated may involve a whole tissue or organ, or only parts of such structures, and that the necessary condition for such destruction to supervene is the want of capillary circulation. Whenever this fails to maintain its vivifying influences, or more plainly speaking maintaining the nutrition and disintegration of the part, decomposition is a natural result. This occurs from the tendency of matter to combine chemically in its simplest forms, when such tendency is not resisted by superior forces, as is the case in highly vitalized parts. And such are the changes that take place in decomposition, and such their tendency. Ammonia, water and carbonic acid are formed, and heat, sulpheretted hydrogen, etc., evolved. And in these changes the oxygen of the atmosphere takes an active part.

Some physiologists consider muscular and nervous action as a means of evolving heat. But I deem it hardly necessary to consider separately the changes involved in these actions, for they so clearly constitute a part of the function of disintegration, that to separate them would leave the latter function a mere name, deprived of much of its duties. No matter is disintegrated without functional action; no healthy change could take place in any tissue without such action; and no action can take place in any tissue or organ without a change in form of part of the materials of such tissue or organ; hence they are intimately blended.

Prof. Leibig, with a few others of minor importance and reputation, who have attempted to ape him in this particular, have set forth the doctrine that increased vascular action and heat in fever are the result of too large a suppply of oxygen by respiration; that this oxygen unites with or oxydizes the solid matter of the tissues, and thus rapidly destroys them, and in this way keeps up an unnatural heat, and finally destroys the patient. The fallacious argument brought forth in support of this theory is, that in fever respiration is usually increased, and the blood flowing with increased rapidity through the large vessels, must necessarily oxydize the tissues more rapidly. But unfortunately for this assumption, the

blood is really less active in the capillaries where such a change can alone take place; and further, that the condition of the blood is such as plainly indicates an opposite state of things; its usually scarlet appearance showing plainly enough that instead of super-oxydation of the tissues, there is a hyper-oxygenated condition.—Oxydation always sets free carbonic acid, with morbid fluid matter which must render the blood dark or venous in color, and when in excess, thick and grumous.

In all febrile and inflammatory forms of disease, capillary circulation, nutrition and secretion, are always greatly diminished; hence these respective modes and changes to which they minister, and which are concerned in evolving animal heat in a normal way, are all very much lessened.

But the abnormal diseased mode of supplying heat supervenes. This consists, as has been elsewhere shown, in simple decomposition of the animal tissues, under simple chemical laws. And the intensity of the heat is greatly increased by the closure of the emunctories, thereby preventing its usually rapid escape. So the patient is not only suffering from the accumulated heat, but is likewise suffering from the rapid loss of the substance of his tissues, by the decomposition, and also by this decomposed material accumulated in his blood. It is mostly this material which constitutes the offensive bilious fecal matter, removed by judicious purgation, and is derived from the blood mostly through the intestinal glandulæ.

But the only mode of checking this rapid waste, and accumulation of heat that is going on in the system, is by re-establishing capillary circulation, nutrition and secretion; and through or by these the natural mode of supplying animal heat. Hence the doctrine of Thomson, that in all forms of disease there must be a reduction of the natural supply of animal heat. And this is emphatically true, though the patient may be burning up in a furnace. And it is likewise emphatically true, that by whatever means, or by whomsoever applied, whether it be bleeding, icing, or douching, the cure is the direct result of the re-establishment of those functions which supply the animal system with its normal quantum of heat; and it is this heat more than other influences which directly maintains life.

But having considered the great dynamical manifestation of vitality, together with those movements upon which its continued presence and its uniformity of elevation are dependent; and also having shown its abnormal mode of production, and the destruc-

tive influences of the changes taking place in the tissues rather than the mere presence of the heat, we may now very properly proceed to notice other vital manifestations, which, though dependent upon this, are by no means secondary either in the complication of their actions, or as guiding us in the performance of the many difficult duties of life.

The function of secretion being one of the more complicated changes through which organized matter is required to pass in the maintenance of the living condition, may very justly be regarded as one of the higher manifestations of vitality. A continued activity on the part of this function is a necessary condition to the maintenance of health, and should therefore be studied with the greatest care by the physician. It is one of those processes which are essential to that elaborated condition of the blood necessary to the act of nutrition; and in a secondary capacity is required for the cleansing of the same fluid. And we may add, that it is to this function we are more immediately indebted for the preparation of that peculiar vivifying sperm upon which the propagation of our species is dependent. There is not a single function in the body but what will languish and pine under a disturbed condition of this.

The complication of this process puts it beyond the reach, to some extent, of physiologists; yet there cannot be any doubt but the changes effected are dependent wholly upon the physical and chemical forces and affinities of matter as operating through organized structures, and modified and stimulated by the dynamical force of heat. The act of secretion is believed to take place by means of the formation of cells from the crude materials, and subsequently the cells are dissolved and constitute the secreted fluid. Such, at any rate, is the case with the formation of bile and several other secretions.

The excretions, such as the urine, perspiration, etc., are separated in a more simple manner, not requiring the intermediation of cell growth. The fibrination of the blood is one of those constantly necessary manifestations of vitality to maintain the integrity of the animal body; and more particularly is it necessary in all diseased conditions requiring the aid of the vis medicatrix naturæ; indeed it constitutes one of the prominent conditions of this development. It is alone through the fibrinating qualities of the blood that wounds are healed, hemorrhages stopped, and to a large extent, no doubt, the act of nutrition performed. None of those reparatory changes can take place in the animal system

without fibrine. It must then be regarded as one of the most indispensable intermediate forms of animal matter; and its formation requiring the higher and more complicated forces of the animal system is a question beyond doubt. We should not omit to mention, too, that an increase of fibrine is one of the conditions always present in well developed fever or inflammation. An argument in support of the recuperative tendency of these manifestations not easily set aside.

Muscular contractility is another vital manifestation, and that department of it which is usually known as involuntary, has much to do in maintaining health, and in its restoration when lost. It is through the agency of this class of muscles that some of the most important evacuations are accomplished.

Muscular contractility is a property of organized matter peculiar to animals. This property, like others belonging to the animal system, is dependent upon the stimulus of the blood and upon an elevated temperature.

But without intending to either teach the physiology of these functions or to discuss them at length, we may pass on to enumerate a few more of these manifestations before we come to the last and most important one to the practical physician, which is the action of the vis medicatrix naturæ.

The coagulation of the blood, though not taking place in the healthy condition of animals, is regarded by Dr. Carpenter as a vital act. And its vitality is claimed whether taking place within or without the system. An assumption which clearly requires a living or independent vitality in the blood. And we may argue in favor of this position from the fact that the blood is not only an organized structure, but that it contains all the elements of matter in the proper proportion for constituting the entire animal fabric. Therefore, if the animal may possess life by virtue of its organization and the influence of heat, why may not the blood likewise? It is true the organization has not advanced so far or to its ultimate destiny, but it is certainly farther advanced in this particular than many of the lower forms of living animals; and being under the influence of the same physical forces of the system generally, we are constrained to believe that it is a living structure.—In fact, we may very justly claim for it a condition beyond a mere living state, for it is under its control, and by virtue of its immediate influence that the muscles and other tissues of the body are enabled to manifest a living vitality. Withdraw or withhold its vivifying influence from any part of the system, and it at once

loses its accustomed active condition. We may therefore not only claim that the blood has a vitality of its own, but that it is continually imparting a vitality to the entire organization.

The blood then is *the* living structure of animal beings. Its abstraction, therefore, so far as it may be pure, is the abstraction of life; that vitality upon which the different tissues and organs of the body are dependent. Then waste not, I conjure you, this life and action-giving fluid.

Nervous influence we regard as not only vital, but its mental manifestations as the *ultimatum* of all vitality, for the support of which alone all the other conditions of organization and vital manifestations were intended. Indeed, we may say, that the entire vegetable kingdom, with that series of species of animals which minister to the support of man, were all intended alone for the support of those conditions necessary to the development of *mentality*. We therefore never invoke the influence of the mental property of nervous matter in a physical sense, for the support of any of the manifestations of life. But like the crowning stone of a fabric, we place it in the most elevated position, and being the ultimate result and purpose of all inferior manifestations, and entirely dependent upon them. It is therefore not only a vital manifestion, but it is the very essence or concentration and purpose of all vitality. And while we are well aware that nervous integrity, and especially its physical influence, is essential to the general welfare of the system, we by no means invoke its action as the basis of vital manifestations. This would be clearly substituting the result as the main cause, and would most clearly be dispensing with all those material causes, as food, atmosphere, and heat; for those who take this non-physiological view of the subject, look upon this nervous influence as consisting of *something* of a more elevated and etherial character than any power derivable from material combinations. Such views, besides having the disadvantage of placing entirely beyond our reach of investigation the sources of vitality, and of course their control by either medicine or hygiene, in a philosophical view, have no foundation beyond a mere vague supposition, and to the medical student must be most discouraging at the very outset of his studies, by convincing him that the whole fabric of his medical education must in the end rest upon the mere chimera, an aurora, or something, the very idea of which cannot be well communicated or understood. Such views may answer well enough for Allopathy—a system noted for its risk and uncertainty—but will certainly not answer upon which

to build up a rival practice in this enlightened day, when demonstration, and the connection between cause and effect are almost the only tests of correctness. It is strange, indeed, that the mere idea of the elevated and far superior character of mentality over all other manifestations of organization, should not have been sufficient to show to the dullest comprehension, that the inferior manifestations were but laboring for the support and development of this higher property—this crowning, and this connecting link between man and his CREATOR. And especially in view of the fact that vitality and life may be found where, if a nervous system exists at all, it is doubtful of demonstration, and in the vegetable kingdom, where elements are combined, sap elaborated and circulated, ministering to the growth of the structure, and even in some instances setting free a considerable amount of heat, as in the flowering of some of the arum species and others.

In our humble judgment, above all other things in a theoretical point, it is our duty to base our doctrines upon a tangible view of the sources and manifestations of those influences upon which our healthy condition is constantly dependent. The least conjecture in this particular evidently leaves us without the proof of the correctness of our practice, in case of a single failure. And more, it leaves us where medicine has been for centuries, resting upon mere conjecture, supposition and speculation. And it may not be amiss to impress upon our readers, that no mode of practice, however safe or correct, can ever stand, unless it can be sustained by a philosophical theory. This is mainly owing to our ambition, ingenuity, and great diversity of judgment. Man allows nothing to remain stationary, except it is something that rests demonstrably upon the immutable laws of nature. Allopathy has long since well understood this fact; hence, for want of a demonstrable theory, she discarded *all* theories, and allowed her votaries to range under the broad folds of her banner, where their fancy or inclination might lead them, so they did not too abruptly attempt to overturn her list of remedies. Eclecticism has adopted the same mode, and only claims that *her* votaries shall not adopt in mass the remedies of Allopathy. For such dogmatical and unphilosophical modes of establishing a system of medical practice, we have an intuitive abhorrence.

If we were so wholly blind as not to know that organized animal bodies have fixed laws by which they live, grow and move, we would certainly disdain to assume even the practice of physic; and were we so doggedly dull as not to form some idea of the na-

ture of these laws, the character of their operations, and the sources of their power, we should certainly have sufficient self-respect to never utter a word or pen a line of instruction to others upon the subject of physic.

We would not be regarded, however, as sufficiently vain to suppose that all we say or write must of necessity be true. But we feel conscious that we are following the proper path of investigation, and if we throw the least light upon what has heretofore been obscure and perplexing, we feel that we shall have done more than those who have never made the attempt. And our errors may be pointed out as quicksand, to be shunned by subsequent investigators.

Having remarked upon the individual manifestations of vitality sufficiently to give our general views, we shall pass on to their consideration when acting more or less unitedly.

VIS MEDICATRIX NATURÆ.

Under this title we recognize a combined action of several vital forces.

As this power has been regarded as preservative in its influences of the integrity of the animal system, by nearly all physicians, from the father of medicine to the present time, it will only be for us to attempt what has, so far as we know, never yet been attempted; that is to tell why, and how it acts, or the reason of its action.

We are by no means fond of broaching subjects which the most learned of many ages have thought proper to avoid; but in this instance the subject lies so directly in our path, according to the plan of investigation we have adopted, that to shun it would be virtually acknowledging our ignorance upon the subject. And as this is the great influence in disease which the physician is called on to aid, it becomes indispensable that our profession should have some idea of the laws which call it into action, otherwise they can no longer claim to prescribe intelligently.

And knowing that this subject would present itself for analyzation and explanation, we purposely omitted much that might have been said under the head of the individual manifestations of vitality, preferring to take them collectively, in order that one discussion might answer for all.

We have discussed, however, to some extent, the influence of heat in effecting those elaborations and changes in animal matter which are essential to the living condition. The fibrination of the blood, and circulation of the same being in a large degree dependent upon the temperature of animal bodies, it would naturally follow that its elevation, within reasonable limits, would increase these conditions, and this too without regard to the mode in which the heat might be generated, or applied, other conditions not obstructing.

Thus we may account for an increase of fibrination of the blood, and also of its increased circulation, in the whole or part of the circulatory apparatus, as obstructions may exist or not, in the capillary vessels. Heat applied by means of a vapor bath is the most effectual mode in case of obstructions, because it applies it more generally to the body than any other artificial mode.

Or the same influence may result from sitting near a warm fire.

Or again, as is the case in febrile forms of disease, it may be set free and accumulated by the decomposition of the animal tissues and the obstruction upon the surface to its usual freedom in passing off.

Notwithstanding this heat is set free and accumulated by processes tending to destroy the life of the individual, it is simply heat, and we have yet been able to discover but one kind of heat, hence as simply an elevated temperature its influence upon animal matter must be the same as though it had been set free and accumulated by a very different and even a healthy process.

Thus we see that nature, while suffering from certain processes, as the decomposition and obstruction, profits by the results of these processes, supposing the elevation not to go beyond the stimulating point.

It is well to observe in this explanation, that the prostration of strength in febrile forms of disease is *altogether* owing to the wasting of the tissues and the obstructions of the functions, and not to the large amount of heat set free, for this could not accumulate to an injurious degree were it not for the latter condition. It is one of the provisions of the animal system that it can always profit by any amount of heat set free within itself if allowed to pass out unobstructed.

And just in proportion as the wasting or decomposition of the system increases is the demand for a constant and elevated temperature to maintain the sinking powers of life. Indeed, were it not for the availability of the heat set free by decomposition, the

system would inevitably sink, in all serious forms of general disease, for the normal modes of generating heat are in such conditions measurably in abeyance.

Thus, it is seen, we account for the production of two of the important phenomena of the *vis medicatrix naturæ*, according to the general laws that govern animal bodies.

Increased fibrination, and we may include its elaboration, as the former is the highest point of the latter; and the increased circulation of the blood, make up two items of that assemblage termed the *vis medicatrix naturæ*. The third consists in that tendency of the blood to flow in increased quantity and with more force towards and into diseased parts. These three items make up the fundamental features of the *vis medicatrix naturæ*. Although we are well aware that secretion, nervous influence, etc., are essential items in effecting a cure, and may be legitimately incorporated as indispensable in the curative process, yet they are secondary to the three first mentioned, and altogether dependent upon them; in fact they may be regarded as results of the former, for it is well known that secretion and nervous influence are both dependent upon the stimulating properties of the blood.

Then the *vis medicatrix naturæ* essentially consists in, first, an increased animal temperature; secondly, a highly elaborated and fibrinated condition of the blood; and thirdly, an increased tendency of this vital fluid to flow to points injured; and as results of these, the various phenomena which restore injured parts to health.

It would be more than nonsense for us to attempt to account for this increased flow of blood to injured parts, by invoking an intelligence on the part of the heart and arteries, or by referring it to the nervous system, for it is well known that the will has but a slight control over the circulation, and in most persons perhaps none at all.

We must then look to natural laws to be found in play in the animal system for the control and direction of this wonderful preserver of life.

And first, we may remark, that heat in any local part tends to invite an increased quantity of blood; as may be exemplified by holding the extremities near a warm fire, or by the increased flow in the system generally, after entering a warm room. The very condition of disease always involves decomposition, which increases the heat, except in cases where the temperature is too low, and in such cases there is no increased afflux of blood. This may be re-

garded as one of the inviting causes. And a second is to be found in those affinities which control the functions of nutrition and stimulation.

Although it is well known that the function of nutrition is governed mainly by a feeling of necessity in the parts to be supplied, for the nutritious matter, it is not very clear as to the precise nature of the affinities between the supplying material and supposed parts. But that an affinity really exists is no longer a question of doubt by physiologists. Prof. Draper has made a number of experiments, by which he has pretty satisfactorily established the affinity between fluids and solids, to depend upon the power of the former to wet the latter. This may seem to be quite a simple mode of explaining what has long been regarded as a difficult problem in physiology; but it must be remembered that nature's laws, when once unravelled to the view, are generally exceedingly simple. In the act of nutrition, there is not only an affinity, but it is an elective affinity—each organ having the power to select from the mass of circulating material the particular particles of matter adapted to its own structure, muscle, bone, nerves, etc.—only supplying itself with matter suited to its growth. And even this elective affinity may be governed by Professor Draper's principles; the materials supplying muscle not being capable of wetting nerve, or the nutriment for the nerves not being capable of wetting muscular substances, etc. etc. At any rate, it is a well known fact, that certain fluids will not wet certain solids. Such is the case with Mercury in a number of instances. This theory accounts more directly for the circulation of fluids through membranes, and along small inelastic tubes, against its own weight; but if it is the main power of passing the fluids through tissues, it may, with equal probability, be concerned in the act of union of the particles of fluid with the solids. See Draper's Chemistry of Plants.

It is well known that a great number of compounds, as well as the primary elements of matter, are endowed with the capacity of uniting when coming in contact. The laboratory supplies abundance of such examples. And in the instance of magnetized iron, the affinity is so great as to attract separate pieces with great force when brought near together. In the absence of a direct knowledge of the precise character of the force operating in the animal system in the act of nutrition, it is sufficient for our argument that we have shown that laws exist in nature sufficient to accomplish the purpose.

If it be admitted that the ordinary waste of the system produces a feeling of demand for a new supply of nutriment—as when a man labors hard he requires more food, the labor actually reducing the weight of his muscles and other soft parts, and of the entire body unless it is supplied with the necessary amount of food, and we suppose no one can reasonably deny will deny this—then it is easy for us to see how and why a diseased parts should set up an increased demand for nutriment, and this includes an increased demand for blood, the entire nutriment being contained within this vital fluid. Disease reduces the entire system much more rapidly, when general, than labor; hence the demand for blood must be much greater. And in local parts, disease, whether it be a bile, a bruise, or a broken bone, likewise produces a more rapid waste than in a state of health, and hence a more rapid supply of blood must be furnished, and this of course increases the circulation towards the part. When the disease is general, the demand in the whole system is greater; therefore, the whole circulation must be accelerated; this constitutes fever. It is true, that in some forms of disease there is a diminished circulation; in such cases the vitality is so far prostrated as not to be able to respond to this increased demand; or in other words, the laws and affinities which make up the vital conditions are partially overcome. This is often the case by the too rapid abstraction of animal heat—but may be the case from other causes, as the introduction of poisons, etc.

This increased waste resulting from disease, occurs in the form of simple decomposition from the ordinary physical force of nature, owing to the disturbance and weakening of the vital forces of the part, as takes place still more rapidly and generally in a dead body, from the entire abstraction of vitality.

If the nutriment is supplied in ample quantity and used freely in the restoration of an injured part, the breach is repaired, and all those manifestations which we term fever or inflammation, but which are but the efforts of the vis medicatrix naturæ, cease, as the efforts of man cease after he has accomplished any given purpose.

Now, it will be observed, to understand the argument clearly, that the two causes act conjointly; the decomposition resulting from disease or injury of an organized structure, produces a greater attraction for the blood in order to repair the rapid waste that is going on; while the decomposition in virtue of the change in the form of matter which is taking place, as well as the more rapid union of oxygen and carbon, is liberating an increased amount

of heat, this increased heat acting as a second attracting cause of the flow of blood to the part. Thus we explain, in accordance with natural laws present in living, animal bodies, this increased flow of blood to a local part—constituting what is termed inflammation; or when occurring throughout the entire system constituting fever.

This with the more highly elaborated condition of the blood, which results from the increased heat and circulation, constitutes the primary condition and manifestation of the vis medicatrix naturæ; and the increased secretions, eliminations and nervous influence are but the resultant sequela, establishing the supremacy of vital powers over conflicting causes, whether they consist in those originally producing the disease alone, or have combined with them the numerous poisons of the misguided physician.

If we have been guided by science in our deductions and reasonings upon this subject, it places beyond question the soundness of our general theory, that heat is the great dynamical power of animal life, and that such means as promote its free evolution are always indicated in the treatment of disease.

While it is admitted that in febrile forms of disease of the synochial and other high grades, there is an abundance of heat supplied by the decomposition taking place, and which is the main feature of the disease, to antagonize, to some extent, the rapid waste that is going on, it still becomes indispensable to use heat generating remedies as the most rapid means of cure.

The necessity of this, the simplest minds may comprehend, for the decomposition, though it may furnish abundance of heat, and perhaps a surplus, is at the same time prostrating all the energies of the system by its destruction of the tissues.

Suppose an individual adopts a mode of labor which is extremely prostrating, but at the same time yields a large profit; can it not be easily seen that it would be more judicious for him to follow a pursuit which would not only maintain his strength, but by its healthful exercise would promote longevity, while it would be equally lucrative. It is just so in regard to checking the evolution of heat by decomposition, though the heat alone would be sustaining as the money would in case of the laborer, while the wasting of the tissues would be equally prostrating as the exhausting labor. But by putting in play, by the use of judicious stimulants, this normal mode of producing heat, we not only get all the benefits of the heat, but at the same time put in play actions and

changes in the system, which, within themselves, are of the utmost importance in reproducing a state of health.

This increased temperature in disease has long been the great stumbling block to many of our profession, and caused many to doubt the correctness of Dr. Thomson's theory of disease. And we confess we have in days past been much perplexed to fully understand the wherefore of giving stimulants, applying the vapor bath, etc., etc., where there seemed to be heat plenty, and in many cases more than was comfortable; but still their application cured the sick in this condition—therefore we were compelled to admit their virtue, and continue to seek for a satisfactory explanation in accordance with those natural and physical laws which control all matter connected with our present condition. And we feel confident that the explanation here given will stand the test of the closest scrutiny and application of science. We therefore submit it in order to remove the mist which has hung about our beautiful and philosophical theory of disease.

FEVER AND INFLAMMATION.

NATURE OF.

Having been engaged for twenty-five years in the advocacy of Medical Reform, and the larger portion of that time as a lecturer in one of its most prominent Colleges, my opportunity has been ample, for seeing, and even feeling the great necessity of a proper exposition of the subjects of Fever and Inflammation. The views which govern the Allopathic practice in these conditions of the human system, having originated at a period in the world's history, when but little was known of either Physiology or Chemistry, it cannot be reasonably supposed by an intelligent person, that those views should be altogether, or even mainly correct. This assertion is abundantly sustained by the change that has taken place in the early theories of nearly all complicated scientific subjects. This is even now so emphatically the case, that every one regards the present as a day of Reform and improvement.

We wish not to be regarded, however, as one who desires to see all old things reformed and converted into new ones. Whatever is founded on just and correct principles we would see remain

so. Neither are we disposed to take any undue advantage of the general spirit of Reform, to introduce new doctrines, or to prejudice old ones.

Our object is simply to present at heory in relation to these subjects which all scientific men must acknowledge as legitimately growing out of the more advanced state of Chemical and Physiological science.

As this advancement has not been the work of an hour or a day, it may be regarded as a matter of surprise, that some one connected with the Allopathic profession should not long since have adapted their views upon these subjects to the advanced state of the Sciences. To such we can only say, that it has never been the custom of professions, sects or governments to change their views, especially when such change involved the upsetting of their whole fabric—until they were driven to it by the people.

It is reasonable to suppose, had the people been content with the order of the old priesthood, that Catholicism would be the only known mode of worship, in this country, at the present day. Neither should we have been blessed with our present form of free government, had our ancestors continued to believe in the 'divine right of kings.' Nor shall we ever have a correct and sanative system of medication so long as the people believe in the infallibility of the doctors and their antiquated medical theories.

The fact in relation to that department of the profession, is, that the *prestige* of certain medicinal agents govern their theory of disease to a much larger extent than their theory does their practice. I doubt whether they have a solitary principle which they regard so universal in the explanation of diseased phenomena as they do calomel in their removal. It may be observed, too, that men of observation have not failed to see the reason of the great change which the Allopaths have recently made in their mode of investigating the cure of disease. It is well when a profession finds every vestige of theory which they have long cherished, likely to be swept from under them to fall back upon observed facts, and declare that theory is at best a useless thing. *False theories* we admit to be very useless indeed—even worse than useless, often destructive, as has been fully realized by all Christendom, in the fallacy that increased vascular action, under the names of fever and inflammation is disease, and consequently treated as such.

Among the many false dogmas which the world has tolerated, we much doubt, whether the equal of this in the destruction of human life can be found. The above hypothesis, however, has

been shrouded in much darkness, and though its fallacy has often been suspected by great men, it has not been clearly demonstrated until within the last half century. And even up to the present time, full advantage has not been taken of many scientific illustrations which bear with great weight upon this subject.

The basis of a correct view or theory of these vexed questions, was set forth by Dr. Samuel Thomson. And though some of his reasoning may not be regarded as strictly scientific, or some of his assertions as absolutely correct, he evidently asserted and illustrated by argument, facts in both physiology and chemistry which were not previously known to scientific men. And upon these physiological and chemical truths, as they are now known by scientific men, he built up a corresponding practice.

Had Dr. Thomson been as fortunate as most discoverers in bringing to his aid at an early day after demonstrating his discoveries, men of the first scientific attainments, it would not now be left for us to defend the sanative character of increased vascular action. It has long been admitted that a certain amount of vascular excitement was necessary in the reunion of fractured bones, in the union of muscular and other tissues, by first intention, and also in the production of granulations.

But it has constantly been maintained by the same authorities, that, if slightly increased, it proved injurious and should be held in check. That the presence of disease, and its grade of development may be marked by the amount of vascular action, to a great extent, is not denied. But this by no means establishes the position that the disease is the legitimate result of the increased action of the heart and arteries. But directly the reverse of this is true. The disease, is the occasion for the development of such action. It has also been a popular error to regard a fever patient as suffering from over action in his system.

Were vascular excitement injurious, this might apply to the vascular system alone. But every intelligent physician, at least, should know, that in the functions collectively there is almost a universal depression, or want of action. Therefore it would be more nearly correct to say that the patient was suffering for want of action, and such remedies should be introduced as are calculated to re-establish it. If such a course were pursued there would be no necessity of ever depressing the vascular action, for it would naturally subside. Having been produced by the recuperative principle of the system solely for the purpose of revitalizing and increasing the action of the various dormant functions, it will as

naturally cease when its duty is performed, as will the laborer when his task is finished.

But it might be well, before we approach this part of the subject, to inquire, First, whence are proximately derived the nutriment and stimuli upon which every organ in the animal system is dependent for its functional action? Secondly, in what particular set of vessels do those actions or functions take place, which look to the support and energizing of the individual organs of the body? And Thirdly, what amount of the vascular system is involved in this increased action termed fever and inflammation?

In the examination of these three inquiries, we shall probably develope facts, which, when compared together, will force certain deductions very different from those heretofore held by the medical world.

Whence then are derived, proximately, the stimuli and nutriment, upon which the various organs are dependent for their functional action? I am well aware of the fact, that some wild vagarists have entertained the idea that vitality or the life of the individual organs is largely, if not wholly, dependent upon nervous stimuli. And although we admit the due influence of the nervous system, as we do all other parts of the general structure, in maintaining the sum total of action and life, of any and all organs, we do nothing more than repeat what are the plain teachings of physiology in all recent authorities, at least, when we say that the peculiar nutriment and stimuli which maintain the action of every organ, even the nervous system, are derived proximately from the blood.

We would not conceal the fact, that occasionally nutricious and even medicinal matter is absorbed directly by the walls of the stomach and intestines. But even then it is a matter of great doubt, whether it is not necessary for such matter to pass directly into the blood and wait its appropriation from that source to the solid parts of the organs, before it can exercise any such influence as stimulation or nutrition. Without lengthening this treatise by numerous quotations, it will only be necessary to refer the reader to Carpenter's Physiology for proof that it is from the blood, as a general rule at least, that all the matters taken into the system, whether nutricious or medicinal, are first incorporated into the blood, and thence are disposed of as the wants of the different organs may demand or the powers of the vis medicatrix naturæ may be able to appropriate. They may be excreted from the blood

as the powers of the excretory organs are able to perform their functions.

It will be borne in mind, then, that the blood is the pabulum of life, not only to the whole system but to each organ individually. Consequently an impoverished condition of this fluid necessarily weakens the whole system by weakening the individual organs, or what would amount to the same thing, the withholding from any cause whatever, the nutriment and stimuli from even a richly furnished blood. This want of appropriation of particles of blood to the solids for the maintenance of their normal condition, may result from a great variety of causes, and such are evidently, so far as they go, remote causes of disease.

It is also a well recognized physiological fact, that the elements from the union of which, animal heat is mostly evolved are incorporated in, and derivable from the blood.

Next, we may inquire, in what particular set of vessels are the important functions of nutrition, secretion, absorption and the evolution of animal heat performed? And in answering this important inquiry, we suppose that every physiologist, at least, will agree with us in saying that it is in the capillary blood vessels.—Even the nourishment afforded the larger arterial trunks is not drawn directly from the blood circulating within them, but from the capillary vessels distributed upon their coats. And there is evidence to show, that even in the more abundant secretions of the body there is interposed the most minute capillary plexuses, as may be witnessed in the Malpighiana of the kidney in separating the more watery from the purer portions of the blood.

For the presence of animal heat in the system, however, we are not to look alone to the union of the elements, or any part thereof, of the blood, as the only means of its generation. For much of the heat evolved, and especially in diseased parts, is entirely due to the rapid decomposition which is going on, and which is as naturally the result of the new chemical combinations which are taking place, as would be in the decomposition of any dead animal matter.

And we suppose our readers cannot be so ignorant of chemical laws, as not to be familiar with the fact, that in the decomposition of all vegetable or animal matter, there is a large amount of heat evolved.

And in all those forms of disease known as fevers, we have abundant evidence, that there is a very rapid waste taking place on the part of the solids, which may be easily shown by observing

the weight of an individual before and after such an attack. And this waste is only to be accounted for by the rapid decomposition that is taking place in all parts of the organism. And owing to this rapid decomposition, heat, and in combination therewith a large amount of that poisonous agent carbonic acid, is set free, the one supplying the large amount of heat present in many forms of fever and in inflammation, and the other proving destructive to the parts by means of its poisonous character. Would not physicians do well to look to the means of stopping this rapid decomposition, and thereby lessening the amount of heat present, and checking the evolution of the poison. And we are very sure that the physiologist and chemist will come to the conclusion that the only way to accomplish this, will be to cause a free circulation of the blood in the capillaries, whence its nutriment and stimuli are appropriated to the diseased and decomposing parts.

We come now to the third inquiry. To what extent is the vascular system involved in this increased action, termed fever and inflammation? And in response to this inquiry, we are unavoidably led by our anatomical and physiological investigations, to the conclusion that it is much the smaller portion, consisting almost entirely, and in many instances, exclusively, of the larger arterial and venous trunks—that portion of the vascular system only which has no direct agency in the aiding of secretion, absorption, etc., for all these functions are promoted directly by the blood in the capillary vessels. And it is a well recognized fact, that the greater the inflammation, the less action in the capillaries.

And it could not be otherwise, for were the capillary circulation free and ample, all that stimuli and nutriment by which each of these functions is mainly supported, they would of course continue their action, and hence that state of the system, and more particularly of the blood, would be prevented, which essentially constitutes disease. For, to speak of a diseased system where all the functions are in normal play, is simply absurd. We then mostly refer disease in its incipient stages to a want of action in one or more of the functions. And this want of action may be dependent upon various chemical or mechanical causes, most generally from a vitiated state of the blood, its want of due elaboration, the introduction of a poisonous agent, mechanical injury, etc.

But observe, the first manifestation of disease, is a want of action, instead of over action. This want of action is dependent upon an exhaustion of vitality, or abstraction of heat, such exhaustion itself being mostly dependent upon the increased decompo-

sition that is taking place in the organ from the action of chemical forces which are continually attacking all organized bodies seeking their entire resolution into simpler compounds. And this change of structure is only prevented by the vitality of the organs.

We have then arrived at the well recognized fact, that whenever the vitality of an organ is lessened, or what is about the same thing, its nutritive functions diminished—decomposition, under the name of disease, makes more rapid inroads.

We have also ascertained that from the blood are drawn all the nutriment and stimuli upon which every organ is dependent for its action, and even life. We have also seen that it is in the capillary vessels that these nutritive functions take place. And we have further arrived at the conclusion, that in fever and inflammation especially, when these run high, such action is confined almost entirely to the larger arterial and venous trunks. Dr. Carpenter, in his physiology, says, "as inflammation increases the capillary circulation diminishes."

Thus it is very clear that we cannot attribute the diseased condition of the tissues to increased vascular action, when it is really diminished in the parenchyma of the diseased parts.

Neither must it be forgotten, that the healthy functional state of all the organs is dependent upon this same capillary circulation, which is greatly diminished in all serious forms of disease.—If these propositions be correct, we should certainly desire an increased action of the blood in the capillaries, and we know of no other way which nature has of accomplishing this object, than by increasing the action of the heart and larger arteries—the very phenomena which we witness in all conditions of capillary stagnation, unless indeed it is in such cases as involve largely the central organs of circulation. We believe it is conceded by all departments of the medical profession, that there is a conservative principle pervading animal bodies which reunites broken bones, severed muscle, nerves, blood vessels, etc. And we presume all must admit, that to enable the student to aid such influence, when it may be too weak, they should be taught something in reference to the symptoms attending and resulting from its manifestation. Unless, indeed, the physician is able to distinguish its manifestations or symptoms, from those produced by disease, he would be as likely to administer with the view of destroying the one as the other. Hence it becomes a matter of absolute necessity for the symptoms of this influence to be clearly pointed out.

We feel safe in assuming that there are *fixed laws* and principles in the government of the different actions of the organs and fluids of the human system, and that they are as well known as the laws that govern this globe, or those that control inorganic matter.

One of those principles we conceive to be the presence of nutriment and stimuli in the blood, upon which all the organs in the body subsist and derive their power to act. Then we would say this is one of our medical doctrines, and we further conceive that the blood supplies itself with this nutriment and stimuli by means of the elaboration of the materials drawn from the food and atmosphere. This is another of our medical principles. And we suppose that the reader who has followed us thus far, will hardly dissent from our third principle that as all nutriment and stimuli are derivable from the blood, that its presence and energetic action are even more urgently demanded in diseased organs which are being rapidly exhausted by the increasing decomposition, than in healthy ones. And consequently it would be the first object of the physician to produce such energetic action. And if this be sound doctrine, we should naturally conclude, that when the *vis medicatrix naturæ* calls into play a similar action, that it must be for a similar purpose, even should it fail to appropriate the stimuli and nutriment, by means of obstructions in the capillary vessels, its purpose is to do so, and in all cases where it does not meet with such resistance, it easily accomplishes the cure.

But the objector may say, it is not by means of the blood and vascular action, that this converservative principle operates.—Through what other agency may this be accomplished? It cannot be through the nervous system, since we are taught by physiology that the nervous system is even more easily deranged than other parts by a withdrawal of a pure and constant circulation of arterial blood through its substance. And when this is effected and is being deprived of its due supply of nourishment, it is hardly probable it can call into play a principle for its own relief without aid from the vascular system. Hence it is the action and appropriation of the blood that we are to look to as the only means of arresting diseased conditions. And we should infer that in proportion as the organ has been reduced or weakened, will be the amount of energy required on the part of the vascular system to restore it. Our physiological teachers do not inform us of any other source from which the tissues of the body draw a support, other than the blood. And the leading feature of disease being

now settled as consisting in an increased decomposition of the tissues, it is exceedingly strange that medical philosophers can regard the *very effort* that is being made by the vascular system, to supply the diseased tissues with more nutriment and stimuli as diseased action. When an organ has become greatly exhausted in its structure, by long continued disease, it is very evident that a larger amount of blood is requisite in such organ for its restoration than would be needed to supply the ordinary waste of healthy action. And in what other manner is this increased amount to be supplied, than by means of increased vascular action?

ILLUSTRATIONS BY EXPERIMENT.

The great misfortune attendant upon proper investigation of this subject, is the fact that the current of professional opinion has long been directed in a channel to correspond with the established practice. And in addition to this, the absolute ignorance of the profession, until recently, of the actual condition of a fevered or inflamed part. Let us look into these phenomena. We are informed by experimenters, that upon the application of a diluted poison to transparent animal tissues, the first manifestation is a confused commotion of the blood, partly to and fro, but mostly into the part thus poisoned. The second indication, however, shows that the blood has diminished in action, and finally if the injury be sufficiently great, the blood in the capillaries nearly or quite ceases to circulate, and assumes a modena color, and ultimately coagulates.

But provided the vitality is not sufficiently depressed to check the increased commotion, and increased quantity that is forced into the part by the invoked excitement of the vascular system, quite a different order of things obtains. Instead of the blood assuming the dark color and losing its activity, it continues to pass through the capillary vessels of the part with more than ordinary speed. And the result is a restoration to health even without the aid of a physician. Now, who can be so stupid as not to see that increased vascular action was a necessary condition to the relief of the part; or so unblushing as to deny it. The result is precisely the same, and the mode of applying the remedy, the same in thousands of cases of mild attacks of disease. Increased vascular action is produced, and thereby a greater amount of stimuli is applied to the different glands, tissues, etc., they consequently eliminate a greater amount of the debris of the system. Nutrition is

also increased, meeting the increased demand resulting from the more rapid decomposition. And thus the individual is restored to health through the agency of a number of functions, all of which were dependent, evidently upon the increased vascular excitement and circulation for their action, for previous to such excitement no such functional actions were developed. Who has not witnessed mild attacts of the so called fevers, thus removed? And this conservative principle will always thus prove able to remove disease, unless the attack is so severe as to prostrate the action of the capillary vessels to an extent that cuts off the free circulation of the blood through them. For increased vascular action can be of no avail to an organ or tissue unless it can fully pass the blood through its capillary vessels.

But many persons are of opinion that when a part presents increased redness and heat, that its circulation is increased. To such objectors, we would say, go study microscopical anatomy, physiology, and pathology, and you will have reason to change your views. It has been mainly this erroneous view, that has led to the extraordinary doctrine that vascular action was disease. It is very true, that in the larger arterial trunks the blood is passing with increased celerity, but not in the small vessels with which are connected most of the important functions of the part. There is no surer symptom, among the whole catalogue, that the capillaries are dormant, than the increased action of the heart and arteries. For whenever free capillary action takes place, there is no longer a necessity for extra arterial action since such capillary action is sure to remove the difficulty. Still we find in the most seriously diseased parts an increased amount of heat, and this has been one of the deceptive signs of disease, which for want of a better knowledge of pathology has assisted in forming the erroneous opinion that vascular action, when much excited, produced disease. But this heat is not the result of vascular action in the part, for the higher the heat rises, the less the circulation in the part. And it is even true, that after all capillary circulation ceases in the part, that the heat still may increase to the point of gangrene. This fact has certainly not escaped the observation of all practical men. This heat then is simply owing to the greatly increased interstitial decomposition of the different tissues in the part diseased.

A similar mode of the production of heat takes place also in the normal condition of the body, but comparatively slow, when it

combines with heat generated in other parts for the general support of life.

Where a serious abstraction of heat in a part takes place sufficient to produce disease, this, of course, is not the primary condition of the disease, but produces the secondary condition of things.

Dr. Thomson, we believe, was the first to distinctly assert the physiological fact, that animal heat is derived from the food and the atmosphere. This he did, however, in a very plain and somewhat crude manner, without pretending to explain the chemistry of the phenomena. Still the manner in which he understood it, subserved his purpose as well as though he had illustrated it as perfectly to the satisfaction of scientific men, as Liebig has since done. For he made that fact one of the bases of his medical theory, upon which, we may safely say, he built up the most consistent practice that had before or has since been known; adopting a theory covering all forms of disease, and then adapting with great strictness all his medicines to his theory. But it is not our purpose, now, to defend any particular theory or practice, further than it may be necessary to establish a correct view of fever and inflammation.

It has been a question of some interest among medical men to determine whether there is more heat in fevered parts, than in the healthy condition of the same structures. Mr. John Hunter contended there was not. But other more recent observers come to a different conclusion, at least so far as many forms of disease are concerned. Professor Dunglison, with several others, state that he has seen the thermometer rise as high as 106 degrees in Scarletina, and some other forms of disease. Our own opinion is, that the temperature of a part, may or may not rise above the normal standard.

Being dependent altogether upon the rapidity with which it is generated, on the one hand, and on the other, with the facility with which it is conducted from the part, it is very evident that in many cases the heat might be generated with normal speed only; but owing to the want of action in the eliminating vessels, it would not escape with usual rapidity, hence, an unusual amount would accumulate. This mode of reasoning seems very satisfactory, but there is a deception included in the argument, which should not be passed unnoticed. It is this: It is quite certain that when the eliminating vessels are deficient in action the normal heat-gen-

erating power would likewise be deficient, hence an equality or a deficiency of heat would be the natural result. But for conceding to morbid phenomena a full share in this action, such evidently would be the result in all cases. Yet, when we go into the investigation of the result of morbid action, we can very plainly see how the heat of a part may be elevated, while normal action is diminished. It is simply owing to the decomposition of the diseased tissues evolving a large amount of heat, being in proportion to the rapidity of decomposition. And this decomposition is in ratio with the severity of the disease, or the ascendency of purely chemical, over vito-chemical laws. It has been rather a favorite theory with many Reformers, to consider a diseased body as deficient in animal heat, supposing this must necessarily be the result of normal action. If the heat were not the result also of morbid or purely chemical action, this would be the whole truth.

There are certain conditions, however, where disease is very serious, and gives evidence that decomposition must be going on quite rapidly; and yet, but little heat is present in the diseased parts. Perhaps this fact may be taken in evidence of error, in supposing that decomposition evolves heat.

But it must be observed, that where heat is generated by eith vegetable or animal decomposition, that there are certain circumstances necessary to account for the degree of elevation. For example: a certain amount of surrounding heat, or else the prevention of its rapid escape, as fast as it is generated. Also a degree of moisture. In the human system, where diseased structures are unnaturally low in temperature, it may be owing to the elimination of the heat being more rapid than its generation, as is the case in cold sweats. Or, the surrounding temperature may be so low, as rapidly to abstract it—or, it may be, what is often the case, a form of disease, in which but little decomposition is taking place.

In that case the deficiency of the normal generating power would soon suffer the temperature to fall below the natural standard, and remain so until such normal action was restored. For it must be observed, that it is constantly our purpose to support the doctrine that in all forms of disease, the normal functions of the parts involved in the disease are diminished in action, as well as in ability to act.

The idea that we have previously advanced, must not be overlooked either; that the only way of checking this evolution of heat resulting from morbid decomposition, as well as the decom-

position itself, is to increase the normal generation of heat. For, upon this, and actions involved in it, are dependent the functions of nutrition, absorption, elimination, and all others looking directly to a state of health.

So in this instance, as in many others, the normal action checks the abnormal. And this is certainly in accordance with sound medical philosophy.

If the morbid phenomena, as decomposition, the evolution and retention of an unusual amount of heat and carbonic acid gas were simply included under the terms fever and inflammation, we should have no objection to their being regarded as diseased conditions. But we wholly object to increased vascular action being regarded as constituting any part of disease, or aiding in its production.

The different changes that take place in the production of vascular excitement, and the varied circumstances under which it is called into action in a state of health, go very far to sustain its sanative character. The changes consist, in part, in an increased action of whole organs, and also in an increased energy on the part of the interstitial functions. Take for example, a student who has before him a severe task of mental labor, upon which his reputation is largely dependent. His vascular circulation, will be excited, especially within the brain, and its vicinity. Now, if we go to physiology for an explanation of this state of things, it informs us that there is an increased action on the part of the nervous matter, attended with a more rapid waste of the organ, and this demands a more rapid nutrition to maintain an equilibrium.—And this increased nutrition demands a more rapid circulation of the blood. This is a strictly physiological condition, and we think should satisfy any one of the necessity of increased vascular action, where exhaustion is taking place in any part of the body.

Again: in case of rapid exercise, or severe labor, we find an increased action of the heart and arteries, and also of the capillaries, intended as above, to compensate the increased waste that is taking place, as the natural result of increased activity on the part of the organs. In this instance, the increased action is oftentimes equal to a strong fever or inflammation. But so soon as the exhausting causes cease, the excitement gradually subsides. And no one thinks of calling this increased action, disease. But if the system should become exhausted from the influence of Malaria, and a similar vascular action should thereby be invoked for the purpose of supplying the waste, it is at once pronounced diseased

action, and the efforts of the physician are at once directed to its suppression, while no proposition seems clearer, than that this action is invoked as a reparatory process to supply the waste and exhaustion of the parts, in one instance, produced by an undue exercise, and in the other, by the poisonous properties of the Malaria. So the organs are in a wasting and partially exhausted condition. It cannot matter by what cause this state of things is brought about, as to the immediate remedy for their restoration.—That remedy only needs to be suitable for this purpose, and as we know of but one means provided, in the animal economy, we always look to it as the repairer of all injuries, as the restorer of all lost or depressed vitality. And as its normal action is required to meet the usual waste of the system, in a state of health, an increased amount is evidently demanded to meet an increased waste and exhaustion. And it is unquestionable that an increased action must take place, to furnish this increased supply. Why then call this increased vascular action, disease, or disease engendering.

For fear of some misapprehension in the application of chemical laws to the animal body, both in disease and health, we will state, that the law which decomposes animal tissues as a result of disease, is a purely chemical law—the same as that witnessed in the decomposition of dead animal matter, and operates solely by virtue of its having gained an ascendency over the vito-chemical laws which look to the maintenance of health.

Our own opinion is, that the gradual decomposition going on in healthy bodies for the production and removal of the debris of such bodies, is performed under the influence of vito-chemical action, and is a very different state of things from what takes place in the decomposition resulting from disease.

It is presumable, however, that there are certain conditions of organs, in which both of these influences operate at the same time. Such, we take to be the condition of things when pus is secreted.

The formation of pus globules being the result of the vito-chemical laws, while the rapid breaking down of the tissues is the result of purely chemical laws. The vito-chemical laws in this instance, offering such a strong resistance to the purely chemical, as to arrest the half dissolved tissues, and transform them into a lower order of animal structure—pus. This position is sustained by the fact, that if you depress the vital powers in the diseased part, that is by withholding or diminishing the circulation in its capillaries, you will stop the formation of pus, and give full scope

to the decomposition. Thus, these laws are often seen to fluctuate, a number of times, one seeming to have mostly the control to-day, while the other is decidedly in the ascendant to-morrow. Similar phenomena are witnessed in the laboratory, in many beautiful experiments, where a great variety of rich colors is produced, first by adding force to the law developing one, and then elevating another law above that, for the development of another. In case the color should be imperfectly formed, there is evidently a struggle between the two laws, the one maintaining the original, while the other is striving for the development of the latter.

The vito-chemical laws are always manifested through the functional actions of organs, while the purely chemical are entirely dependent upon an entire or partial depression of these for its action and results. Indeed, the functional actions are but manifestations of the former, while their depression gives evidence of the latter, or it may be further illustrated by saying, that the latter hold undisputed sway over all organized matter, when the former are absent, as a solid ball will displace an amount of atmosphere equal to its volume in whatever position it might be placed in this element, but upon its removal its space would be occupied by the atmosphere.

So, as our bodies are elaborated from inorganic matter, by the force of vito-chemical laws, their suppression allows the purely chemical to resolve them back to the inorganic elements. And this principle holds good, as well in individual organs or tissues, or even in the most minute vessel or part of animal matter, which is capable of action, as in the entire organism.

The great mistake that has constantly been made upon these vexed questions, has arisen mostly for want of a due discrimination between what are the results of morbid conditions, and what are the results of the conservative principle of the system, or the true condition of parts necessary to call this into action.

There is such an action known to chemistry as catalysis or catalytic. This action is manifested in various compounds, by the introduction of an additional agent—decomposing certain compounds, and even forming new ones, out of the constituents of the old, without affecting the agent introduced. Thus by the mere presence of a certain agent or principle, a series of changes is set up, resulting in the destruction of the original structure and evolving certain phenomena of a very different character. This principle or action is thought to take place in the germinating process of certain vegetables. We think it highly probable that cer-

tain phenomena in the animal system may be indebted to this same action for their manifestation. It is the opinion of some physiologists that a portion of the debris of the system is re-elaborated and made to subserve a second organization and living active condition. This dissolution and reconstruction of cells out of part or all the old materials is very similar to the manifestations of this action in the laboratory, or in case of fever, where the whole parenchyma of the system, is in a congested and inactive condition, and so far reduced as to allow quite a relaxed, and in some cases, even softened condition of the tissues, the introduction of capsicum as well as many other stimulants, seems to act upon the elementary particles of the body, to increase their affinity so as to give more firmness and solidity to the parts, and consequently more functional action.

May it not be the *mere presence* of the capsicum acting as a catalytic agent that induces such chemical changes in the tissues as results in an improved condition?

Many other agents may owe their effects to the same principle, whether beneficial or injurious.

It is an observed fact, in microscopical investigations, that upon the first impression of the poison, there is a relaxation and softening tendency on the part of the capillaries, and their diameters absolutely increase under the subsequent influx of blood. But it will be observed, that this increase of caliber and softening takes place, before the vascular excitement has had time to produce any such results, for the enlargement is observed with the first influx of blood; showing conclusively that these were antecedent conditions, and constituted a part of the conditions which invoked the increased influx. The sluggish condition, too, which the blood assumes in the softened and enlarged state of the vessels, is a sure indication of a serious depression of vitality. In fact, the vitality of such parts may be accurately estimated, by the degree of activity of the circulation. As it becomes slower the vitality is proportionally depressed; or as it is invigorated the vitality is strengthened, confirming the physiological assertion, that the higher the inflamation, the less capillary circulation. Or in other words, the higher the action in the heart and larger arterial and venous trunks, the lower the action in the systemic capillaries. And this is a most reasonable state of things; for the greater the difficulty in passing the blood through those parts in which all the most important functions of the organism are performed, and upon which the life is dependent, the greater the effort should be, on the part of the

more independent and powerful organs of the circulating system. This principle, as well as all others concerned in the support of organization, compares well with the relations of cause and effect in every day life. The greater our difficulties the more powerful our efforts.

Let us confine ourselves to observed phenomena in diseased parts, from the inception of the disease until its termination, and it is impossible to find a single part that even seems to favor the idea that the varied abnormal appearances are the result of increased vascular action. To suppose for instance, that the softened and expanded condition of the capillaries which is evidenced upon the first increased influx of blood, and that the vascular excitement is the whole cause of these states, would be to say that every time you run a horse or otherwise excite his vascular system, you would produce these diseased conditions. That a people who know but little or anything of anatomy and physiology may hold these opinions, is not a matter of surprise, but any person who is familiar with these branches of science, that can believe such errors must have had the truth purposely obscured from him, or his faculty of reason and judgment must be of a low order. Such individuals may learn to form pretty sentences in rhetoric, but they will certainly never materially disturb any existing errors of society.

Professor Draper states that it is an erroneous view to suppose that decomposition is going on with increased rapidity during disease, in consequence of the presence of a decomposing force, for such force is in continual action on healthy tissues, and the only reason, its results are not more clearly marked in health, is the compensating action of nutrition. But Carpenter says, that morbid matter in contact with sounder parts increases the decomposition of such parts, and that such debris does remain in the parenchyma of organs, in consequence of the want of the eliminating action on the part of the vessels. We have elsewhere stated that we conceive the physiological waste of the system, is dependent upon the normal action of organs, while diseased decomposition is the result of a purely chemical law.

It has long been a matter of profound astonishment to us, that the symptoms present in all that class of morbid conditions known as yellow, typhus, typhoid fever, cholera, etc., should not have led physicians to see more clearly the true indications of vascular excitement. For in all these forms of disease, the depression of vascular action isa sure index to the low condition of vitality, while

an increased power and force on the part of the heart and arteries is just as sure an indication of the increasing powers of the physiological functions. Proving beyond question, that the action of those functions, the due performance of which constitutes health, is dependent mainly upon this increased flow of blood. If not, why should there be such a constant relation between the two conditions? Some may be disposed to answer this question by putting another, viz: why do we witness such serious forms of disease when vascular action is at its highest point? We answer this by replying that however high it may be, its force is not sufficient to maintain even the ordinary circulation in the systemic capillaries, the only part of the circulatory system from which nutriment and stimuli is appropriated. This state of things is comparable to an individual expending all his strength in endeavoring to raise a weight, but is not quite equal to the task, but should a friend step up and lend his aid, the weight is easily raised. Thus when the sanative physician steps forth and increases the stimulating power of the blood by the introduction of capsicum, lobelia, etc., the blood is at once enabled to penetrate the capillaries, and drive forth disease by superceding the purely chemical actions which are destroying the parts, by increasing the vito-chemical force, after which it is as natural for the effort which was laboring to effect this change to subside as for the individual to cease to raise the weight after this had been accomplished by the aid of the friend. We shall not deny that this want of power on the part of the blood to accomplish these favorable changes unaided, may be owing in part to its own condition. On the other hand we regard this altered condition as part of the argument.

RELAXING AND STIMULATING EFFECTS OF LOBELIA UPON DIFFERENT TISSUES—ACTION OF CAPSICUM, ETC.

But we have mentioned lobelia as a stimulant and calculated to increase the stimuli of the vital fluid. We are well aware that lobelia is a relaxant. Dr. Thomson informs us, however, that it is also a stimulant. If it possesses both these properties, it can neither be a *general* relaxant or stimulant, for in one sense these are antagonizing powers.

It may and does possess the power of producing both these conditions, but produces neither effect upon the entire organism.—While it universally relaxes muscular fibre, it as certainly stimulates most of the glands and small vessels of the organs which are devoid of muscular fibre.

We are well aware that the increased glandular and capillary action taking place under the influence of lobelia has been referred to its relaxing powers, by some of the ablest reformers of the the day. But this was done under the false view that their diseased condition consisted in a constriction of their vessels; while it is now well understood that the reverse is the case, in most febrile forms of disease. The application of warm vapor has a similar double property. While capsicum is more thoroughly a stimulant, lobelia diminishes the action of one part of the circulatory system, while it as certainly increases another part. For example, the heart being dependent for its action, as well as the large arteries in some degree, upon muscular contractility, they are necessarily rendered less active by the influence of the lobelia, while the systemic capillaries are increased in their circulation; first by the stimulating properties of the lobelia upon their coats, and secondly, by the relaxation of the muscular fibres upon which they are distributed; thus removing any undue pressure from that source.

There is no proposition more evident to our mind than that lobelia stimulates to a greater activity the cell formation concerned in the secretion of bile and other glandular products thus separated. The sweat glands too, must be stimulated to increased power to act to increase their elimination; or relaxation is the very reverse condition of that necessary to action. But we by no means deny that muscular relaxation favors the increased action of vessels passing through them. But this fact is not sufficient alone, to account for the largely increased action which often takes place under the influence of general muscular relaxants. There must be stimulation on the part of the eliminating vessels. The erroneous views taught in reference to this subject, or in other instances the partial illustration only, has led to much confusion in our profession.

Previous to arriving at our present views, as here expressed, we were greatly embarrassed in reference to the action of many of our processes of medication. To say that in all febrile disease, constriction is the prominent difficulty, and a relaxant the proper remedy; and after sufficient relaxation, then, alternate relaxation and contraction was never satisfactory to our mind as the only means necessary in the cure of disease. The idea that all disease consists mostly in a relaxation and enlargement of vessels, and a want of power to maintain their normal action, and consequent obstruction, has constantly been gaining strength in our mind from our earliest knowledge of physiology. And to conceive that their condition

could be changed without stimulating the relaxed and weakened vessels, has always presented a difficulty which we have not been able to harmonize with other known laws. For example, an individual, laboring under a slight febrile attack, applies the vapor bath, and under the influence of the stimulus of the heat applied, the capillaries are called into action, and the stimulus of the blood is thus appropriated to the parenchyma of the organs, and the individual restored to health. In this instance, however, we do not deny but that the muscular system may be somewhat or considerably relaxed, but the nutritious, stimulating, absorbing and eliminating vessels must be stimulated to increased action. And all these are dependent upon an increased circulation of the blood in the systemic capillaries.

Relaxation of muscular fibre, I regard as a minor point in the treatment of disease when compared with stimulation. For if the vessels be stimulated to sufficient action, this relaxation of the muscles will naturally result from the action of the blood upon the parts constricted.

We admit, however, that this stimulation of the system generally without the use of agents to relax the muscular fibre, is sometimes attended with unpleasant symptoms. Such is the case with the use of capsicum in certain stages of febrile action. If it be alone administered freely, while the fever is rising, a restless and disagreeable sensation is produced. But this by no means proves that there are not certain vessels in the system which would be greatly aided by the use of the stimulating properties of capsicum. But the pepper being a universal stimulant, causes or increases the muscular contraction so as to prevent the passage of fluids through the small vessels penetrating the muscular tissues—and thus a struggle ensues between the vessel and muscular tissue. But if lobelia or some other muscular relaxant be duly administered, no such resistance is met with, and the patient is the better, because of having used the capsicum. Perhaps it is a want of a knowledge of these facts which has induced some of our profession to regard capsicum as contra indicated where there is much vascular action.

It is true that in all high grades of fever capsicum is not so urgently required as in low grades. For in the former, the vis medicatrix naturæ is very nearly, if not quite, able to remove the disease without the aid of such artificial means. But there has been no fact more abundantly proven, than that the cure may be greatly hastened in every case of fever by the use of capsicum, whether in the first or last stage, if the necessary precaution be used to ad-

minister it at a proper time and in combination with other appropriate remedies, in accordance with the principles here laid down.

It has been a great misfortune to Medical Reform, that these facts have not been sufficiently explained. It has, in our humble opinion, been one of the prominent barriers to the more general adoption of the sanative view of fever and inflammation.

In certain conditions of the human system, any one can see the utility of general stimulants, for the purpose of awakening increased vascular action. But the great majority have had their pathological vision so perfectly obscured by some external prominent symptoms as to mislead them; and instead of inquiring into the morbid condition of the more minute, and immediately important organs to life, have proceeded to administer to such symptoms. As old and as much revered as is the custom of administering with a view to depress the heat and extra vascular action of the system, we doubt very much, whether any one, at all intelligent upon medical subjects, can seriously say, after due investigation, that these are the primary conditions that are destroying the patient. For these conditions are often manifested from extra bodily exercise, and pass off without any serious inconvenience or aid of the physician.

THE LANCET, CALOMEL, ETC.

In this age of enlightenment and investigation, it does really look strange to see a physician after a critical examination of a fever patient, fail to give any importance or attention to the great number of organs and functions which are wholly or partly checked in their action, with the exception of that of the liver. To this and the increased heat and action of the large arteries, heart and veins, he proceeds to administer, and leaves to take care of their own action, as best they may—the capillary vessels—the kidneys—the sweat glands, the intestinal glandulæ, the great lymphatic system of vessels; the nervous system, besides numerous smaller glands and organs which have their respective duties to perform in the maintenance of health. Yet strange as this may seem, it is even so in the middle of the nineteenth century. But this is not the worst, for by their false theories upon this subject, they are led to the use of means which add a greater degree of prostration and debility to these organs. For example, the lancet is used to draw from the diseased system a portion of that fluid, upon which all these organs are dependent for what little action they may have left them, or for a restoration of such as may be entirely dormant.

And this is the only fluid that can subserve that purpose under any circumstances. Again, the more powerful and drastic debilitating agents a re sought for the purpose of emulging the liver—the only emunctory to which they seem to give any serious attention. And these powerfully drastic agents do not spend their force alone upon the liver, but every organ in the system feels their debilitating and deranging effects, to a greater or less extent. And instead of invigorating and toning the nervous system, that its important influence might be felt in the invigoration of other dormant parts, morphine or opium are resorted to, which only paralyses and deadens its normal action. In view of all this, we think, we might well ask, even Allopathy, in all candor, if this is treating disease in accordance with an enlightened Pathology. To simply view this treatment as we have above sketched it, would give it the character of a perfect outrage upon life and health. But unfortunately, good and evil are often mixed, and are so in medicine as well as in other things. And as it is our purpose to discuss this subject, with the greatest fairness, we are disposed to give "even old Nick his due."

The lancet, then, would long ago have been scouted from society as one of the greatest curses of the age, had it not been for the deceptive influences which result in many cases from its use. These seemingly favorable influences centre mainly in its relaxing power over muscular fibre. When venesection is resorted to in pleurasy or pneumonia, every observer well knows, that if relaxation of the constricted surface does not follow, that there is no apparent service derived. The same thing may be said in appoplexy, and indeed, in regard to the use of the lancet generally. No physician is satisfied with the results of his bleedings, as a general thing, unless relaxation, and an increased circulation in the systemic capillaries ensue. It is true that in some particular conditions, the dimunition of the action of the heart and arteries may be the only object, but this is rarely the case in the present day, and is a worse than useless object when gained. If this relaxation was the only effect produced by the lancet, it might be more tolerable. But this is its only probable beneficial result. And when we take into consideration the manner in which this is brought about, it will be seen that it had better been omitted. We have no recollection of any other mode being laid down by which this is accomplished, than simply by diminishing the quantity of blood in congested parts, and by directly abstracting the vital stimuli of the system to that extent as to result in relaxation by simple exhaustion, or want

of power to maintain the constricted condition. We think the latter is the principle means by which it is accomplished. For in a congested organ, the withdrawal of a portion of the active blood, can have no influence in abstracting directly that which is stationary, or nearly so. Therefore, we attribute its relaxing powers to the withdrawal of the natural stimulus to an extent that relaxes purely from debility or weakness. And this mainly affects organs and parts composed of muscular fibre, the contraction of which, has to a partial extent, and only a partial, promoted the congestion. When this constriction is removed, a freer circulation of the blood takes place in the capillaries, solely from the removal of the constriction. This is so much benefit, taken as an isolated result. The gentle perspiration, however, which sometimes follows this debilitated relaxation, results directly from stimulation. The constriction being removed the blood is relieved from one of its causes of abstraction in the capillaries, and the heart and arteries still maintaining a liberal force, propel the blood through the relaxed parts, while the stimulating properties are appropriated to the sweat glands, and thus a moderate perspiration is produced—still not so free as might have been produced, had not the blood been reduced in quantity and deprived of much of its most stimulating properties. But in order to gain this little benefit a great deal of damage has been done. The entire organism has been lessened in strength and vigor, just at the time when these are in greatest demand.—This loss, too, is equally great, and oftentimes even more severely felt by individual organs and functions, the vigor and action of which, are of the utmost importance in the relief of the patient.—But all this might still be borne with impunity, for the *little* good among the great amount of evil, were it not for the notorious fact, that this good may easily be accomplished by numerous means, which produce none of the bad results. And I may even go further, and say, that in addition to the little benefit resulting from the lancet, they accomplish other and equally important purposes, in the cure or disease, without doing any serious injury. Lobelia will abundantly relax muscular fibre; the vapor bath does likewise; and these two in combination, will hardly fail in the very worst of cases. An infusion of composition answers admirably in many cases for the same purpose. Many of the simple herbs, as Pennyroyal, etc., etc., will do likewise in mild cases. Ipecacuanha may be used for the same purpose. Lobelia, while its relaxing effects upon muscular tissue are certain, also stimulates certain other tissues, and thus a double object is gained.

The fact must not be omitted, that while the lancet seemingly does some good, by relaxing the muscular fibre, that the only benefit resulting is directly from the *stimulus* of the blood as it is forced through the capillaries by what little strength and stimulus are left on the part of the blood and circulatory apparatus. Whereas had this relaxation been produced by diffusable stimulants, the blood would not only have retained all the stimuli which it possessed, but these would have been increased, and proportionally would its power, for the removal of disease, by the application of these to weakened organs been increased.

All the good resulting, as we discover, even *indirectly* by the lancet, is by means of stimulus being applied to the dormant organs; and this being indissolubly connected with the increased vascular action, and constantly producing it, and operating through it, either in the large or small vessels, goes clearly to prove that instead of being regarded as disease, it is every where called in aid, for the removal of disease, and that too, with greater force than is usual for the maintenance of the normal condition. And we might add, that uniformly as vascular action becomes weak, or deficient, disease increases.

Thus, if one of the most positively depressing agents known to medicine, is shown to produce what little good may be claimed for it, directly from a freer circulation of the blood, and that only —certainly no one will wish to hold this in check, or will ever resort to such doubtful means as the lancet—when it is abundantly evident that many other agents will accomplish this with much greater safety and certainty.

Calomel is another one of those agents of a mixed character, which often does some good, but oftener much harm; the latter greatly predominating over the former. Most writers in denouncing Mercury, and especially a certain class of physicians, make no discrimination whatever in its favor, but denounce it *per se*. But we never knew this wholesale denunciation to address itself with much force to candid and scientific men. For example, it would be the merest nonsense, to say this to one of the southern planters, whose family consist of one hundred or more persons, and who has been accustomed to the use of calomel as the main agent in bilious fevers for thirty years, and had witnessed hundreds of cases recovering under its use. They would regard you as either a fool or an impostor, and give you no further attention. While by admitting what little good it does, they would readily give due attention to your report of its evils, many of which they had not been ac-

customed to observe. And thus they could eventually be changed to a safer practice. This is the spirit in which we feel disposed to discuss the subject. And we have no fears either of losing the force of the argument by this admission. We then distinctly state, that so far as the liver and other organs are caused to disgorge morbid matters which they may contain; or so far as they may be called into action for the selection of such matters from the blood and other fluids, by the use of calomel, it is beneficial in the cure of disease. These properties, so far as the liver is concerned, at least, calomel is well known to possess. And did its action stop here, and did it even accomplish this much in a safe manner to the system, we should be a decided advocate for its use. And we will even go further, and say that if these results could not be accomplished by any other means of a safer character, that we might sometimes deem it prudent to recommend it. But we are an uncompromising opponent of calomel and all other mercurial preparations as medicine. And our opposition is founded on the fact that all the good which results from calomel may be secured with equal facility by several other agents which produce but little, if any of the ill effects of mercury. In a case of bilious fever, a patient takes a full dose of calomel, it operates freely—much morbid matter is removed from the system, and the patient is restored to reasonable health. In such a case the good may predominate over the evil. But suppose the medicine does not operate so kindly, and it should be repeated, and again repeated, while the patient is daily growing worse, and finally dies. There can be no sort of doubt that the calomel kills the majority of such cases. For experience has abundantly proven that the disease alone will not destroy so many as die under the use of this drug. Or suppose that the patient recovers after being subejcted to this severe mercurial treatment, the result is that his constitution is seriously injured, and often ruined.

These facts come so clearly within the experience of thousands, that they cannot be disputed. Again, suppose a case of dormant liver; calomel or blue pill is the usual resort, temporary relief is obtained after each repetition for an indefinite time, but eventually, even this fails to be secured, and the patient, with feelings of despair resorts to the numerous nostrums and panaceas, without, in most cases, much more benefit, and finally as an act of desperation, resorts to the reformers, who, if his constitution be not too far prostrated, generally make him tolerably comfortable, for the balance

of a shortened life. We have met with a number of just such cases.

The greatest difficulty about the action of mercury, is its deception. It is very much like ardent spirits in this particular, the first dram you take makes you feel better, but if you take them too frequently, they soon destroy you by degrees, or if you become a constant drinker, they terminate your existence speedily. Calomel, however, is more active. It relieves for a time, but its prostrating effects are left upon the system, and if continued, eventually destroys the patient.

Calomel acts positively upon the liver; of this there is no doubt, as a general rule. But in the first place it is given in one half the instances where no such action on this organ is required. Secondly, its action is so powerful, and being produced by a poisonous agent it leaves the liver in a dormant state. It is true, that while under the influence of the mercury, the liver secretes a larger amount of bilious matter from the blood, leaving that fluid quite clear for a time, but leaves the liver inactive, and so soon as time elapses sufficient for the foul bilious matters to accumulate in the blood again, another dose of mercury is indispensable to again arouse it to action, to re-cleanse the blood, and thus the liver is further prostrated. Now, the medicine needed for such a condition of the liver, is an agent which will call the liver into action and at the same time add permanent strength to the organ, so that it may maintain its action, after the immediate effects of the medicine have ceased.—And, that this can be done by a combination of anti-bilious vegetable purgatives and stimulants, belonging to the reform practice, there is no doubt.

To prove this, I need only refer to the fact, that a respectable minority of the large, as well as the smaller families of the south, rely on the reform practice exclusively. And in their judgment it proves much more successful in effecting cures, than the old calomel mode. And what is of infinite importance too, it restores the patient to health, without leaving the constitution materially impaired. Mercury not only debilitates the liver, but it depresses most of the functions of the body. It frequently decomposes the bones. It is subject, agreeably to the statement of able chemists, also, to be converted, after being taken into the stomach as calomel, into corrosive sublimate by uniting with hydrochloric and other acids frequently found in the human stomach.

But our main object in the examination of the action of this article, is to show that its depressing powers have nothing to do in

the cure of disease under any circumstances. We shall proceed to the examination of that subject. We suppose that it cannot be pretended, that its action on the liver causing it to secrete an extra amount of bile, can be the result of a depression of the organ.—Therefore it must be from a stimulation. It is a conceded fact that the very idea of depression brings with it the idea of deficient action. While to stimulate is to increase in action. Therefore, wherever the action of any organ is increased, there must be stimulation, whether the stimulant be of artificial application or from the vis medicatrix naturæ. Mercury then stimulates the liver and other glands, as the salivary, etc., to eliminate a greater amount of their specific secretions. But unfortunately this stimulus partakes of an abnormal character. Having some doubts, however, about the propriety of the use of this term, we will proceed to explain its action differently. To our understanding, there has always been a marked difference between a pure stimulant and an irritant. Calomel we consider as belonging to the latter class of medical agents. A pure stimulant, is one that adds permanent strength and vigor to organs; while an irritant is an agent which deranges and disturbs, and depresses to some extent the equilibrium of organs. And a fever or increased vascular action is called into play in the deranged part in order to resist the action of the irritant—hence increased action.

A pure stimulant and an irritant are frequently combined in the same agent or compound. This is the case with most good ardent spirits—the irritating principle, however, most generally predominating.

Our opinion is that mercury is entirely devoid of any pure stimulus. Therefore, when administered to a patient whose vitality is too low to be called into increased action by its irritating effects, it proves directly depressing. And such a conclusion, we believe observation and experience sustain. Should doubts arise as to the correctness of these conclusions, we would remark, that it is not at all compatible with the animal economy, to have concentrated into some special part a greater amount of vascular action, and resulting from it secretion, nutrition, etc. This is often witnessed both as the result of exercise, as in the blacksmith's arm—and in the presence of some foreign substance, as stone in the bladder causing increased thickness of its coats—also increased thickness of the soles of the feet, palms of the hands, etc., from irritation.—It is solely upon this principle that frictions are used to invite the blood to the surface.

Calomel then irritates the liver, and causes a greater concentration of vascular action in that organ, hence a greater amount of stimuli of the blood is appropriated to the secreting vessels, which cause them to act with more energy. And thus the blood is cleansed of its extra amount of bilious matter.

All this might be well enough, but for the fact that the irritation has been so great as to materially and permanently weaken the organ. Every one is familiar with the fact that friction may be carried to such an extent upon any part of the body as to result in permanent derangement or debility of the part, and yet increased vascular action will be present so long as the friction is continued. Whether poisons operate through this principle of irritation, or through some other distinct principle, is a scientific fact of much interest, which we do not regard as yet settled.

But while upon this subject, it may not be amiss to make some further remarks upon pure and impure stimulants. The purest stimulants with which we are acquainted, belong to the more common and better articles of diet. These evidently add a permanent strength and vigor to the system generally, as every one has abundantly proven by his own experience. Medicinal stimulants, however, are agents which have this property combined in a way to enter the circulation without the intermediate process of digestion. With this exception, we regard a pure medicinal stimulant identical in nature and action to their stimulus of food.

Many stimulants which are comparatively pure, possess some irritating properties. Capsicum is the purest among the stronger stimulants, with which we are acquainted.

It has been the want of a distinction between a pure stimulant, and a mere irritant, which has caused our Allopathic brethren to make such wonderful blunders in regard to the action of capsicum in fever patients. The same reason too, was the principle cause, of the rapid failure of the Brunonion system of treating disease.—Brown used brandy and opium as his stimulants, which were mainly, if not wholly dependent for the excitement which they invoked upon a general exhaustion of vitality. The higher you elevate, the greater the depression to follow, is a general maxim with Allopathy, and when irritants are used, is a very true one. But it is not true in relation to a pure stimulant—the more you take of it, the more energy is added to the vitality of your system, and the more it is capable of resisting depressing causes. The more wholesome food you take into your stomach and properly

digest, the more energy and vigor your system permanently maintains.

The whole argument goes to show that mercury only irritates, and thus invokes a large amount of the stimulus of the blood to the part irritated, and thus its action is increased. And should this organ be an important eliminator of morbid matters from the system, temporary good may result. But the organ thus irritated must always permanently suffer as a consequence of such irritation. More than this, the withdrawal of so large an amount of the stimulus of the blood from other organs of the body which are already greatly enfeebled must still further depress them. And this debility often becomes very serious.

Having seen most clearly, that what little good is accomplished by the introduction of Calomel into the system, is done directly and by the stimulus of the blood alone, would it not be much better to introduce at once a pure stimulant for this purpose? The liver will then be stimulated naturally by the blood being greatly enriched with that principle, and therefore an abstraction of it from other weakened organs will not take place.

As we discover too, that the action of the blood and stimulating properties must be increased and centered to the liver, in order to invoke a greater secretion, would it not be better policy to increase first the stimulating properties of the blood, and secondly its general circulation through all the weakened organs; and should it pass with greater speed through sound ones, no damage need be apprehended. In other words, get up a general fever, for this is nothing more nor less than an increased circulation.

Opium and other narcotics, we regard of less service than almost any other class of agents belonging to the materia medica.—In fact, their use is a tacit admission, by him who prescribes them, that they are incapable of removing the disease. For if the disease was removed, or even its urgent symptoms abated, there would not be the least conceivable use for this class of medicines.

We should require no better evidence of the inefficiency of any practice, than to know that narcotics were part of its agents. And these remarks must be apparent to any one who examines the subject. Take a case of extreme pain from any cause, and if the physician can only abate it, there is no use for the narcotic. Consequently when he uses it, the evidence is plain that he cannot subdue the pain; hence he must give such an agent as will render the system insensible to pain. And in thus paralyzing the sensi-

bility of the patient, much of that effect on the part of the recuperative power of the system is also lost. And thus quite a mild form of disease is frequently greatly protracted.

There are but two slight impressions which narcotics make upon the system, which are claimed to be remedial.

First, they sometimes act as astringents in checking diarrhœa: or what is a better explanation of their action, they paralyze the bowels to such an extent that their action is diminished. But even this generally fails in severe and dangerous cases. Secondly, they have some tendency to relax muscular fibre. But this is so uncertain that it is not relied on as of much utility. Their main purpose being to narcotize, and thus render the derangement of organs insensible. Some, even medical reformers, regard opium as possessing nervine properties, and have gone so far as to give directions for separating the narcotic from the nervine property. But we are decidedly of opinion that opium is entirely devoid of any such principle as a pure nervine. By this term, it is proper to state that we mean, an agent that quiets the nervous system by increasing its strength and vigor. We, at any rate, have yet to witness any such results from opium.

The people have been so long accustomed to the use of opium, calomel, etc., that they are constantly asking for substitutes for these agents. And many of our practitioners have inadvertently run into the same habit. But we have always regarded it as absurd to look for substitutes when the originals could be had. So in this instance, if you like the action of these articles, take the originals and let the substitutes go. But for our part, we can see no use for substitutes for any such agents. It has always been our purpose to avoid the conditions which these agents produce. They are health-destroying, and should never be used. And so long as Reformers tolerate the idea in the public mind, that substitutes for either calomel or opium are desirable in the cure of disease, just that long the public will continue to use them. If we pretend to reform the present miserable practice of physic, let us do it, and not be continually talking of substitutes for agents, the effects of which we are continually deprecating, and upon the downfall of which reform has reached its present elevation. Opium has been abundantly proven to be one of the most useless drugs ever administered to the sick. The practice of the earlier reformers abundantly sustains this assertion. And those who have sought substitutes in the extract of the lettuce, etc., until they have

finally adopted the original, have, according to our observation, uniformly become less successful in the cure of disease.

Just in proportion as you narcotize the system, in that proportion you weaken the vis medicatrix naturæ, through which you can alone operate for the relief of the patient. All agents, therefore, of this character uniformly protract the cure.

In reference to this class of drugs, we do not deem it necessary to show that they operate by sustaining or increasing the circulation—for we do not believe that they have any such tendency nor do we believe that they are ever of the least service in the cure of disease. We know that some will differ from us in this opinion, but we give it as the result of our observation, and reasoning upon this subject. We know of no theory with which they can be harmonized in the cure of disease, except the stale doctrine of absolute depletion, upon which no class of physicians operate at the present day.

It will be observed that we recognize different modes or rather causes of relaxation, from a temporary depression, another from actual exhaustion, while a third mode is from stimulation. The latter comporting more nearly with the physiological condition than either of the others. Indeed, this is the natural mode of producing this condition in a state of health. Relaxation from temporary depression, however, does no serious injury to the constitution.

But exhaustion should always be avoided as a dangerous mode of producing relaxation. It is thus, that the lancet, tartar emetic, and other poisons operate. A popular distinction in these matters is of the utmost importance in leading to a correct and philosophical practice. The one mode actually aids the encroachments of disease, while the other aids in its removal. And when practicable, the mode by stimulation is always to be preferred, from the great aid it affords every weakened organ in the system; and more particularly the systemic circulation, an object always to be kept in mind in the treatment of every form of disease.

INFLUENCE OF WATER, ETC., IN FEVER CASES.

A very important difficulty to be overcome, in the mind of some medical men, in order to the complete establishment of the sanative character of fever and inflammation is the action of cold air and water, in these conditions. The general opinion is, that cold water in high grades of fever and inflammation, is a direct sedative, and from this effect is calculated to lessen the vascular action, and thus benefit the patient.

But no conclusion can be more erroneous than that the benefit results from any such cause.

We have before alluded to the fact, that diseased parts may accumulate an oppressive amount of heat and carbonic acid gas—from the rapid decomposition of the tissues under the influence of disease. In such an instance, the application of cold water is a most appropriate remedy, and soothes and cools the part by abstracting a portion of the oppressive heat and carbonic acid. This, instead of directly depressing the part, abstracts that which was but adding force to the disease. And we entertain not a doubt, or we might say it amounts to actual demonstration, that the circulation of the blood in the capillaries of the part is increased, and in many cases perspiration is produced.

It is true that where the application is very extensive, there may be such a large abstraction of heat, as to temporarily depress the circulation, but reaction very soon refurnishes the system with an increased supply of stimulus from a freer circulation. In cases where reaction does not occur, and leaves depletion complete, it is without doubt a decidedly injurious application. We have had the misfortune to realize this, more than once to our sorrow. It is the stimulating result of the application of cold water, then, that we are to look to, as being beneficial, and not its sedative influence. Where there is too much heat in a part, or in the entire system, its partial abstraction by such means, is also beneficial.—But in this case, it only places the parts in a condition to increase their action and thus check the decomposition which is going on and at the same time increase the generation of animal heat by means of the vito-chemical process, one of the most potent means of checking the purely chemical dissolution.

But water, as well as air, is to a certain extent a direct stimulant. The part which the atmosphere has in the general stimulation of the body, by means of its reception into the lungs, is well understood; and the colder the air the greater the amount of stimulus in the same volume. Physiology also teaches us that air is absorbed by means of the cutaneous surface, and thus the blood is enriched to a certain extent by its stimulating properties. This is a most important mode of supplying partially stagnant blood near the surface; and when thus absorbed, it proves a direct stimulant, notwithstanding its coldness to the surface may at the same time abstract a certain amount of heat, as it is well known to do from the lungs during respiration. Experiments upon the inferior ani-

mals show that the application of an air-proof paste applied to the entire surface very soon causes death.

The composition of water satisfies us, as we suppose it must any one, that its absorption when applied to dry and warm surfaces, communicates to the blood a much larger amount of oxygen, than even atmospheric air, when applied in like manner. It is too well known, to need comment, that water is readily absorbed when applied to inflamed surfaces, and is decidedly a beneficial application, whether applied warm or cold. But in case of extra heat, the cold is usually the better application as it reduces it to a normal standard. The stimulating effects of water upon the animal system, I attribute, to a large extent, to the amount of oxygen which it imparts to the blood in the systemic capillaries. And in addition to its abstraction of heat when too great from chemical decomposition, this is its principal benefit in the cure of disease.

I therefore pronounce the leading effects of water, to be stimulating, and instead of operating prejudicial to the sanative character of fever and inflammation, is in its results upon a diseased system a direct supporter of fever and action.

Similar remaks might be made in reference to a great many other agents which are used, by various departments of the medical profession. The general principle is, that all agents which deplete are injurious so far as depletion is felt, although, in many instances, ulterior objects of a different character may warrant their use. As a general rule in most forms of disease, and more especially of febrile conditions, want of action constitutes the prominent feature of the disease. This, however, is not always apparent, and under such circumstances, must be judged of by a proper knowledge of pathology. Indeed, we think it may be laid down as an established axiom in pathology, that in all cases of increased vascular action, that such action is the result, or is induced in consequence of want of action in some of the functions of the body. And the restoration of such lost action, is always the occasion for the subsidence of extra vascular excitement.

There is a condition, however, at least in health, if not in some forms of disease, when an extra demand is made upon certain organs and functions which require extra vascular excitation, without any previous debility existing. Such is the case in all fatiguing exercise. And this fact proves the correctness of the general proposition, that vascular excitation is the only source to be looked to, to increase the action of depressed functions.

In fact to sum up the weight of testimony, we know of no way

of investigating the entire subject without arriving at the result, that in health the entire organism and functions of the body are perpetuated as such by means of a normal circulation; and that whenever these are reduced below the state of health, they are to be restored by an increase of this same power. If we are wrong in this opinion, we are honestly so, for our entire reading of physiology has constantly pointed us to this doctrine as the only sensible and correct one.

APPLICATION TO SPECIAL FORMS OF DISEASE AS APOPLEXY, ETC.

But in further elucidation of the conservative power of this increased action, we shall examine the pathology and indications of cure, in certain forms of disease, which are regarded by many as mainly the result of increased vascular excitement.

And the first form of disease we shall take up for investigation is Apoplexy. We select this from the fact that over action is the principal cause assigned for its appearance, and depletion the only sensible treatment for its relief. It is our purpurpose to submit our theory to the strongest test, for if it will not bear that, it is useless. We have no use for any code of principles, or remedies which are only applicable to mild cases; for these are curable by numerous means, and in most instances, would be best left to nature alone.

Suppose you apply to the arm a diluted poison, of sufficient strenth to materially disturb the healthy condition of the part.—Will not an increased amount of blood be directed to that part? And will it not accumulate there, if the injury be considerable? And will not the blood thus accumulated lose its bright arterial color, and become partially stationary? Or suppose you produce the same degree of injury by means of friction, or a blow with some hard substance, will not the general phenomena result?—With a knowledge of all these facts, you call in a physician, and after duly examining the injury—he proceeds to state that owing to some peculiar condition or irregularity of the vascular system a greater amount of blood was forced into the part, and thus all the injury which you were suffering, was the result; and the only remedy was to weaken the power of the vascular system, and thus lessen the amount of blood forced into the part, or at any rate, lessen the forcing power. Under such explanations and prescriptions, could common sense, to say nothing of pathological knowledge, be so blinded and perverted, as not to feel contempt at such nonesense, in lieu of solid medical knowledge?

But in so plain a case it may be replied, that any one would know the injury to be the result of the poison, friction, or blow, in stead of increased vascular action. It would seem reasonable that *any one* should know this. But what are the conditions of the systemic capillaries, the functions of nutrition, secretion and generation of animal heat, etc? The microscope informs us that the capillary vessels are enlarged, softened and less active, than in a state of health. That the functions of secretion, nutrition and the generation of animal heat, as the result of normal action are lessened. And forsooth, how are these functions to be restored to their healthy action? The allopath tells you, as you have just heard, that it must be done by withholding that very fluid upon which they are all dependent for their action, in a state of health. Wonderful discovery this! No one need be surprised at the extraordinary results that have attended the discovery and practice of such a theory of the circulation as this! No wonder that the declaration has more than once emanated from high medical authority, "that the lancet has slain more than the sword and famine combined!"

Well now, I would ask all pathologists, at least, what constitutes the difference in injury just described, and a case of apoplexy? Some irritating or poisonous agent impresses injuriously the brain, and straightway result all the phenomena which were described as resulting from the injury on the arm. The capillary blood vessels of the brain are softened, enlarged and less active than in a state of health; secretion, nutrition, etc., are entirely stopped, or materially lessened in their action. And a more bountiful supply of arterial blood is furnished under an increased action of neighboring vessels to restore these injured vessels and functions to their normal conditions. But in steps the doctor and holds out the idea that this entire state of things has been the result of the increased action of the vascular system and consequent congestion of the part. Now it might be well to inquire, which of these conditions takes place first? Which really seems to be the result of the other? In case of the poisoned or injured arm—did the vascular excitement and congestion take place before the poison, friction or blow was inflicted? Or, was the vascular action invoked as a repairer of the injury previously inflicted? Then why support such nonesense? And as we see vascular excitement the constant follower of such injuries, instead of their precursor, in parts that can be properly investigated, why reverse the order of nature when the brain or other internal organs is the

seat of disease? And as increased vascular action is always invoked as a repairer of injuries, why attempt to destroy it by the use of the lancet, in this injury? Why not give such agents for the restoration of the capillaries and other parts to a normal condition, when located in the brain, as are found useful for such purpose, in other tissues? The same blood, the same stimulus, derived from the same materials, and propelled by the same force, maintains these vessels, and the same functions in health, whether located in nervous, muscular, osseous or any other of the animal tissues. Then why not resort to the same therapeutic agents for the removal of a morbid condition of these parts, whether located in nervous or muscular tissue? When this softened, enlarged, and inactive condition of the systemic capillaries is found to be most readily removed when located upon the arm, by the application of stimulating agents, why not apply the same character of agents, for the removal of these conditions, when located in the nervous system?

The truth is, apoplexy is nothing more nor less than what is usually called inflammation, consisting in a want of action of the smaller vessels involved in the disease—a total or partial stagnation of the functions, as in inflammatory conditions of other parts, and requires such treatment as will increase the action of these dormant vessels and functions.

And even where blood vessels are ruptured, such injury is not the result of the increased force of the vital fluid, but of the softened condition of the vessels. For but few persons arrive at puberty without having their vascular system equally excited numerous times, without any such serious results. And he who attempts to relieve this condition of the brain, by abstracting the vital fluid, but takes away a part of that stimulus upon which the parts are *alone* dependent for a restoration to health. To equalize the circulation is a very proper course to be pursued; but this can never be accomplished by the abstraction of blood, for Andrel says: "if the blood be reduced to but one quart in the entire system, that will be found in the inflamed vessels." Experience is, perhaps, the surest guide to a correct theory, and in this particular we are abundantly sustained. Several cases have come under our own observation and treatment; and the course we have uniformly pursued has been to administer stimulating and equalizing remedies, and that with entire success.

We might continue to elaborate this subject, in showing the sanative character of vascular excitement, and a stimulating treat-

ment as the main one indicated, but we trust this point is sufficiently clear.

FALSE VIEW OF INCREASED ACTION.

Medical men are too much in the habit of complicating their teachings and reasonings upon medical subjects.

Taking the variety and mystery of organs and functions as a *type* of the motive power and derangements of the animal system, they have thrown into perfect confusion and mystery, each of these departments of medical science. Seemingly, regarding living bodies as they do lifeless machinery, which is often deranged by the application of too great a propelling force; forgetting that a lifeless piece of mechanism is as complete, and vastly more durable, without propulsion than with it, while organized living bodies, can only exist as such by means of the constant action of such power—the structure of the organs being moulded as the result of this vital action. And whenever any obstacle is offered to the required renewal of the organs, it is as natural and philosophical for that action to be increased in its force, as it would be for the mechanic to increase his energy under opposing causes, to the completion, within a given time, of any piece of machinery—the renewal of the organs being a condition indispensable to the continuance of life, the power performing this when opposed being necessarily increased or the renewing process, and consequently, the life of the part must cease. And we suppose that no one can deny that the action of the blood and the train of functions solely dependent on that, constitute this renewing power. Hence increased circulation in fever; or if local, inflammation, is necessary to meet and overcome the influences of disease, which is seeking to check the formation of new animal matter, and even to decompose that already formed. Fever then is sanative in its character and tendency.

But some have gone so far in their ignorance upon this subject, as to say, that, "because an excited circulation was unusual, it was therefore diseased." I suppose it would be very natural for a mechanic to hasten his efforts to complete a given work in a short time; or for an engineer to increase the motive power of his engine to overcome resistance. And we regard it *equally natural* for the motive power of human organisms to be increased to overcome resistance. All great efforts on the part of animals, whether physical or mental—whether in disease or health—wheth-

er for the preservation of the integrity of the organs, or merely some physical feat, as leaping, running, etc., require an increase of the motive power, or circulation, to maintain the organs in these efforts. Then why is not this increased action as *natural* under these increased efforts, as a milder action, under a different state of the organs? The one condition is evidently as *natural* under the one set of circumstances as the other is under the reverse circumstances.

If we take a strictly physiological view of the human system, we shall find it much more simple, both in reference to its elementary composition and its life maintaining forces, than is generally conceded. And such a view will greatly simplify the nature of disease and its *natural remedy*—fever and inflammation. Many pieces of machinery which are exceedingly complicated in structure of parts, are exceedingly simple both as to the elements which enter into their composition, and the motive power which propels them. And thus it is to a great extent with the animal machine.

The human body, we find composed *mostly* of four elements. Oxygen, Hydrogen, Carbon and Nitrogen. Under the different combinations of these, different tissues and organs of the body are formed. It is true, that mere traces of a number of other elements are found in nearly, if not all, the tissues of the body, but they constitute such a very inconsiderable portion, when compared to the four first, they may very justly be said to form appendages—while many of them are rather accidental than otherwise. We then have, elementarily, quite a simple structure, composed of the three elements which make up almost the entire structure of the vegetable, but having superadded, the additional element of nitrogen.

This is a wise and simple arrangement, as the one subsists upon and at the expense of the other.

The moulding of these elements into the different tissues and structures of the human body, takes place under the influence of animal heat: an element which is as much dependent upon constant fuel in the human body, as when generated in the furnace of the steam engine, or the stoves which warm our rooms. And as the heat thus generated in the engine furnace, moves the machinery when properly adjusted and oiled, so the heat in the human system puts in play the different parts of the organization. And the *identical elements* for its production are the same, whether generated in the one place or the other, or whether for the one

purpose or the other, oxygen and carbon being the essential, and main ingredients in both instances furnished, in the one, by coal or wood and the atmosphere; in the other, by food and the atmosphere. In the steam engine, a proper adjustment of its part being essential to its motion under the influence of the heat—in the animal body, a proper adjustment of its tissues and organs, is likewise necessary for its action under this influence.

The element or principle of heat, is one of the most universal in all nature. It is not only indispensable to organic life, under every form, but it is even necessary to the present state of the inorganic world. It is needless to say, that without a certain and constant supply of this principle, the whole fluid creation would become one solid, congealed mass, in which no living being could exist.

And very much in proportion as this principle is developed, in organized bodies, do we find them rising in the scale of created beings; either as objects of intelligence, or of action—the manifestation of either the one or the other of these properties in a high degree, requiring a proportional rapidity in the change of the elements, or decomposition and renewal of the organs brought into use; proving conclusively, the controling influence which the property of heat exercises over the formation and due functional activity of the animal body. The absurd idea, however, that in any quantity, or however generated, it must necessarily increase the normal functions, must not be tolerated, as a carollary from the above process of reasoning, any more than that any amount of food however prepared, must go to the sustenance of the system. The one assumption would be equally absurd with the other. The illustration of this point will be found in the foregoing part of this essay where the different modes of the production of heat are more fully considered.

It is not only necessary for the system to contain a given degree of heat, but the mode, and the parts in which it is generated, and its equilibrium, have much to do with its vitalizing influence. It may be altogether possible for the system, or particular parts of it, at least, to contain a large amount of animal heat, without its proving at all beneficial to the general health, but on the contrary, may prove injurious. Food, drink, etc., are often injurious, though we subsist mainly upon these.

Some debaters upon this subject of heat, fever, etc., split hairs so nicely as to distinguish between *efforts* on the part of nature, and the results. But this is fairly dodging the question. If a cer-

tain distance is to be overcome by locomotion it might as well be contended, that the *effort*, instead of the walking or running is *that* which accomplishes the object. No object in nature can be accomplished apart from the result of the effort, when considered in this sense.

The orator may make a desperate effort to make a speech, but unless some results are seen or felt by his auditory, they are not likely to be greatly moved. A mere effort without a result, is a thing that cannot be appreciated. We can only judge of efforts, by the results.

To say that nature always makes an effort to rid herself of disease, but the result of that effort—the fever—always proves injurious, is the wildest proposition we have yet seen on that subject.—It is nothing more or less, than to say that the human body has within itself a conservative power, but whenever it is called into action, it is certain to prove destructive.

Although we regard animal heat as the great motive power to functional activity, and as a sort of primary condition to all developments or phenomena in the animal system, we by no means regard it as capable, *alone*, of maintaining life, or of even maintaining in the higher organization a single function. Other conditions are necessary in every single living action. In the formation of vitalized blood, the agency of the nervous influence is indispensable. In locomotion, muscular contractility is likewise indispensable.

The nervous influence, indeed, is necessary in the performance of all functional activity. In the exercise of the steam engine, a great many parts are requisite, and each one is necessary for its complete performance. Still every one must admit that the application of heat is the great motive power which propels the machine, though if the water were absent, or the steam were to escape unduly—proper action would be wanting. So in the human body the food and the atmosphere furnish the material from which is produced the animal heat, which is the great motive power of both the physical and mental man, and as greater effort of the one or the other is demanded, a greater amount of heat is evolved, provided the heat generating power is not too far exhausted to respond to such demand.

Still the nervous influence, with many others, is indispensable to the proper application of this agent; and more completely to unite and make dependent, one upon the other, the many parts of animal bodies, the nervous system is intimately connected with

every organ and function of the organism, and without its diffusible stimulus, all other influences are futile in the manifestations of life. This fact, however, does not relieve the nervous system from its dependence upon this same motive power. The steam engine would not play without the pistons, but the action of these is dependent upon the heat. The blood cannot be formed and vitalized without the presence of nervous stimulus; but the ability of the nerves to furnish that stimulus is dependent upon animal heat.

That property or power which is the immediate result of a consumption of the elements upon which all organized matter subsists, must in accordance with all good philosophy, be regarded as the motive power to all animal action, whatever other conditions may be necessary to the proper application of that force to individual or collective organs.

It may be true that this primary force may operate through other secondary forces. But each of these is moved as it is moved upon. And in proportion as the primary force is weakened, must be the secondary. As the fuel of the system is withheld, the entire system is weakened.

The investigations of scientific men are leading them unerringly and unavoidably to a due application of the great influence of heat in the production of most of the important phenomena of animal life. At this we are much gratified. But we must express our regret at the fact, that in most instances no mention whatever is made of Dr. Thomson, who was not only the first to boldly present this doctrine, but presented it with such prominence, as to mainly base thereupon an entirely new system of practice, which in half a century has become, in many parts of this country, exceedingly popular. In order to sustain the remark of the preceding sentence, as well as to bring proof, and that too, of the very highest order, in support of our general views on this subject; we will make a short quotation from Professor Carpenter's physiology, third edition, page 145.

He says, "The condition of men and all warm-blooded animals however, differs in this important particular, from that of cold-blooded animals, and of plants. For whilst the latter are almost entirely dependent for the *heat* which is the *source* of their vital force, upon that which they receive from the solar rays, so that their temperature rises and falls with that of the medium they inhabit, the former are enabled to maintain the heat of their bodies at a constant standard by combustive processes which take place

in their interior, at the expense, not only of the materials of their disintegrated tissues, but also of a portion of their food, the non-azotized ingredients of which are chiefly appropriated to this purpose. And thus we find that whilst the azotized compounds prepared by plants supply the actual *materials* for the building up of the animal fabric, the hydrocarbonaceous, or non-azotized, (starchy, saccharine, oleaginous, etc.,) answer the *not less* important purpose of furnishing by their restoration to their original condition, the chief *dynamical* agency, which acting through the previously formed organic structure, enables it to appropriate the former, and thus to supply the conditions needed for the production of nervous muscular power, the development of which may be considered as the great end of animal existence. And it is a very interesting exemplification of the correctness of these views, that the rate of recurrence of those periodical phenomena of various kinds, which mark the progress of vital activity, should be almost entirely dependent among cold-blooded animals upon external influences, so that they may be artificially accelerated by warmth and retarded by cold; whereas, in warm blooded animals their recurrence is far more regular—the rate of their vital activity, being kept at a much more uniform standard, in virtue of their fixed temperature."

We were not apprised when we commenced writing this essay, that Prof. Carpenter, in his last edition, so fully sustained the sanative character of inflammation, but as we progress in the examination of his great work on Physiology, we meet with abundant evidence of his correctness upon this subject. The greatest regret we have in reference to his position, is that he fails to notice what he must have known, that Dr. Thomson advanced this doctrine more than half a century ago, and since his time, it has been maintained by a numerous class of physicians in this country, up to the present day. And I might add that Dr. Thomson's works have long since been published, at least in substance, in England by Dr. Coffin, who also introduced his practice. And, however elevated a position Prof. Carpenter may have occupied in the medical profession; as a lover of science, he could not have overlooked these facts. But it remains to be seen whether the physicians of this country will follow his views upon this subject, or still persist in the stale dogma that fever and inflammation consist in an unduly exalted vitality, and thus constitute disease.

Professor Carpenter, however, still persists in speaking of inflammation as disease. In this of course he is wrong; though in

the sense in which he intends to be understood, he is correct—viz: the depressed and altered condition of the solids.

But to show more fully his concurrence in the doctrines of reform, we will quote more liberally. Speaking of the human *germ*, he says: "that it is in a *passive* capacity, and the germ must be acted upon by a force external to it, before it can advance a single step in the developmental process. This force is *heat*, which being supplied by the parental organism, is converted by this instrumentality into the vital force, whereby it appropriates the nutrient materials supplied to it, and converts these into living tissue." Page 149. So much for the important agency of heat in the first steps of animal organization. It is also shown by the same author, that the subsequent developments are dependent upon the same agent.

Speaking more immediately of inflammation, under the head of abnormal forms of the nutritive process, page 566, he says: "We shall confine ourselves to a brief examination of a few of the most important of these states; and that which first claims our attention on account of the frequency of its occurrence, and the importance of its results, is *inflammation*. Although pathologists have been accustomed to look for the proximate cause of the phenomena, which essentially constitute the inflammatory state, or, in other words, for the first departure of the normal course of vital action, in the enlarged or contracted state of the blood vessels of the inflamed part, or in the altered rate of movement of the blood through it, yet it may now be safely affirmed, that these are only secondary alterations, depending upon an original and essential perversion of that normal reaction between the blood and the tissues which constitute the proper nutritive process. This perversion manifests itself in a dimunition in the formative activity of the tissues, leading to their degeneration and death—in a tendency to augmented production of the plastic components of the blood; and in the effusion of these components, either in a state in which they may pass into a low form of organized tissue, or in such a degraded condition that they are altogether unorganizable, and are fit only to be cast out of the body. Each of these phenomena, requires a separate examination, both as to its causes and its consequences.

"Although it has been customary to speak of inflammation as a state of *increased action* in the part affected—of which increased action, the augmentation in the bulk and weight of an inflamed part, and in the quantity of blood which passes through it, together with its higher temperature and more acute sensibility would

seem to furnish sufficient, yet all these signs are found to be *deceptive* when they are more closely examined; and the conclusion is *forced upon us, that the vital power of the part is really depressed* rather than exalted. For the increase in weight and bulk is not due to such an augmentation of its tissue as would truly constitute hypertrophy; on the contrary, even in the slightest forms of inflammation there is such a diminution of the rate of its nutrition as really constitutes atrophy; and such augmentation of the solid mass as may take place, is produced by the passage of the effused fluid into an organized tissue of the lowest kind, and this in virtue rather of its own plasticity, than of the vital force which it derives from the tissues which it infiltrates.

"That there has been an atrophy rather than a hypertrophy of the proper fabric of the part, becomes evident enough when the inflammation has passed away, and this newly formed tissue undergoes degeneration and absorption. The only tissues in which there is any appearance of increased formation during the inflammatory state, are those which correspond in their lower type of organization with the new tissue thus generated; namely, the areolar and other simple fibrous tissues, and also the osseous, of which the organized basis is of the same kind.

"When the inflammation is more severe, the tendency to degeneration in the proper tissues of the part becomes very obvious; for it is by their interstitial decay and removal, that the cavity of an *abscess* is formed; it is by their *superficial* death and absorption or solution that *ulceration* takes place; and it is in the death of a whole mass at once, that gangrene consists—that a diminution in the formative activity of the tissues is an essential characteristic of the inflammatory state, further appears from the study of its etiology; for whether the causes to which the inflammatory attack may be traced, are *local or general*, acting primarily upon the tissues of the part, or first affecting the blood, their operation is essentially the same. For the *local* causes are all such as tend either directly to *depress* the vital powers, or to elevate them at first, and then to depress them by exhaustion. Of the former kind, are cold and mechanical injury—also many chemical agents, whose operations tend to bring back the living tissues to the condition of inorganic compounds. Under the latter category are to be ranked all those agencies which produce over exertion of the functional power of the part, amongst which may be named heat, when not too excessive to produce a directly destructive effect.

"Now cold, heat, chemical agents and mechanical injury, when

operating in sufficient intensity, at once *kill* the part by entirely destroying instead of merely depressing its vital power; and it is on the borders of the dead part, where the cause has acted with less potency, that we find the inflammatory state subsequently presenting itself. On the other hand, there can be no doubt, that many inflammations have their origin in morbid conditions of the blood, which, without any other cause whatever, may determine all the other phenomena. This is most obvious with regard to those of a specific kind; but it is also probably true of the majority of the so-called spontaneous or constitutional, as distinguished from traumatic inflammations.

"We seem, indeed, to be able to trace a regular gradation between inflammatory attacks which are entirely traceable to the introduction of a poison into the blood, and those which result from causes purely local. Under the first head we may unquestionably rank such inflammatory diseases as are producible by inoculation, the eruptive fevers for example; and scarcely less thoroughly demonstrated are the causes of rheumatism and gout, and many inflammations of the cutaneous textures; which, when occurring in the chronic form, tend to exhibit a regular symmetry. In all such cases, the local affections are the external signs of the general affection of the blood, just as are the inflammations produced by the introduction of arsenic, or of other irritant poisons into the circulation; and they may in fact be reasonably attributed to the impairment of the formative activity of the parts upon which these poisons fix themselves, in virtue of their elective affinity, just as the peculiar functional activity of the nervous centres is affected by narcotic poison. And this view of the really local action of what are primarily regarded as general or constitutional causes of inflammation, is confirmed by the fact that the location of the perverted nutritive condition is often determined (as Dr. W. Budd and Mr. Paget have remarked,) by a previous or concurrent weakening or depression of the vital activity of the part. Thus, a part which has been the seat of a former disease or injury, and which has never recovered its vigor of nutrition, is always more liable than another to be the seat of local manifestation of blood disease; it is in common language the weak point. And it frequently needs the concurrent operation of a local depressing cause, to fix and develop the action of the constitutional cause, or blood disorder: thus a rheumatic or gouty diathesis may exist for some time (as to use a common expression, when the disease is flying about the patient,) and yet the poison may not have sufficient potency to pro-

duce an attack of acute inflammation, until the vitality of some particular organ becomes depressed by cold, or over exertion or some similar influence, which would not have itself engendered the diseased action, had it not been for the concurrent morbid condition of the blood.

"Thus, we seem justified in concluding, that, whether the causes of inflammation act directly upon the tissues of a part, or whether they act upon it through the intermediation of the blood, their effect is to produce a depression in its vital powers, which manifests itself in a *deficient formative activity*, and in an *increased tendency to degeneration;* and that this is one of the primary and essential conditions of inflammation.

"This view is by no means inconsistent with other manifestations of inflammation which have been supposed to indicate increased action; and in fact, it is in such striking accordance with the phenomena presented by the movement of the blood, when these are interpreted by the principles already laid down, as to afford a powerful confirmation to both doctrines. The usual condition of the vessels of an inflamed part, is one of dilation; and this may be fairly attributed to the lowered vitality of their walls, whereby they yield too readily to the distending force of the current of blood. But this current moves too slowly; and its retardation may gradually increase in the part most intensely inflamed, to the point of complete stagnation.

"Now this altered rate of movement cannot be attributed to any general cause, nor can it be accounted for by the change in the diameter of the vessels; for, on the one hand, it may occur with a constricted state of the vessels—whilst on the other, in the vessels surrounding the inflamed part, which partake of the dilated condition, the flow of blood is so far from being retarded, that it usually takes place more rapidly than usual. But it may fairly be considered as the result of the lowered or suspended nutritive activity of the part, which will tend to retard or entirely check the motion of the blood in the systemic capillaries, just as the want of action retards or checks the pulmonary circulation.

"It is quite true, that a larger amount of blood passes through a limb, of which *some part* is in a state of active inflammation, than passes through the corresponding sound limb; but this is far from indicating increased action in the inflamed part, being dependent upon the augmented flow of blood through the tissues which surround it; and if the whole of a limb be in a state of inflammation passing on to gangrene (as occurs when a frost bitten limb has

been incautiously warmed) the amount of blood which passes through it is diminished. It would be just as erroneous to assume the elevated temperature of an inflamed part as a sign of increased action in it; for this elevation is no doubt attributable in part to the augmented flow of blood through the surrounding vessels; and, so far as it depends upon local changes, it obviously indicates a more rapid disintegration of tissue, rather than a more rapid production of it; since it is in the former state rather than in the latter, that the conditions of the development of heat (on the chemical theory) are supplied, as we see that the heat of a muscle is the greatest when it is being disintegrated by active exercise, not when it is being repaired by the formation of new tissue in the intervals of repose."

The above quotation shows plainly the effect which has been produced by the efforts of medical reform in this country, however feeble they may have been regarded by our mystifying Allopathic neighbors. Seemingly, with a view of obscuring the source from whence these views were derived, a great deal of useless lumber is lugged in, with reference to distant authors, etc., etc.—Our author still keeps up too, the silly idea of inflammation being disease; thereby completely perverting the literal meaning of the word—every scholar, at least, knowing the term to mean increased heat and action—whilst the Professor clearly shows that the disease called inflammation, consists in a depressed vitality; why then apply a term which means the very reverse—increased vitality?

It would have been much more correct as well as independent to have declared the whole truth, and said that the vascular excitement or inflammation is conservative in its tendency, and is only seeking to overcome the depressed vitality of vessels, functions, etc., which constitute the disease, let it be called by whatever name it may, or be produced from whatever cause it may; for this is evidently the inference from his whole course of reasoning. But possibly his is the better policy to accomplish the object which he has in view; for if he had announced the whole truth, as Thomson did, he would have met to some extent, the same fate.—And even to the extent he has gone in the support of the importance of animal heat in developing and supporting animal life, he has already met with opposition, in a published lecture by Prof. Jackson, of Philadelphia.

But the Rubicon is passed, and Professor Jackson may as well give it up—for these principles in medical reform have been pressed with so much earnestness and truthfulness in this country, that

even without the aid of Professor Carpenter, they would have very soon become the dominant medical principles of the day. And the greater matter of surpise is, that Professor Jackson had not seen that fact, and acknowledged his indebtedness to Professor Carpenter for stealing our *thunder*, and at the same time, humbugging the world with the idea that it was a "forced deduction," from recently more perfect scientific inquiries in anatomy and pathology. Dr. Thomsom, however, was able to make the same discovery more than half a century ago, without even the aid of the microscope.

It will be observed that the author from whom we quote, sustains the same views in relation to the elevated temperature of diseased parts which we advanced in the first part of this Essay, but does not so fully explain it. In speaking of cases of consumption where most of the lungs were entirely absent: he says, "the heat upon the surface has been found to be much greater than in health."

This we conceive to be one of the clearest cases of the generation of heat by decomposition that can possibly be instanced.—There is a rapid waste of the system evidently going on, while at the same time, all those functions which generate heat in the healthy body are greatly impaired. And in ratio with the amount of waste or loss on the part of the solids, and the rapidity of the loss, will be the amount of heat developed by the abnormal process of decomposition.

But even in this wasting and greatly exhausted condition of the vitality of the system, this increased temperature of the surface, and the manifestation of what little vitality were left—the quickened pulse, have been sure indications to the misguided Allopathic profession, for the use of hydrocyanic acid and other agents to further depress the vitality by holding in check the circulation which was alone capable of arresting the rapid decomposition by means of nutrition, calorification, etc.

When we consider the directly injurious tendency of such a course of practice, we can only wonder that the fatality has not been even greater than what the world has so sadly realized. But at the same time, it affords us an ample reason for the great care which has been exercised in medical teaching, to ascertain the precise amount of the different *poisons* which could be borne by the human system under different circumstances, without producing immediate death. And sad as the reflection really is, and as little credit as it may give to an otherwise enlightened medical

world—this has been the most prominent feature of the practical part of medical study for centuries past; though not in every instance the prominent feature in medical books, but the unavoidable *incident* in the study of all the "heroic remedies" of the Materia Medica, and much the most difficult part to judiciously comprehend.

A sad commentary indeed, in matters of human life—but false theory, must and will, always lead to a false and destructive practice, and the more it is obscured by, and encumbered with so called science, the more difficult it will be to detect the error.

HEAT THE MAIN SUPPORTER OF LIFE.

It is contended by some medical philosophers, that the vital manifestations of organized beings are the result of some supernatural power, but the tendency now is among the more enlightened and investigating portion of the medical world, to refer them to the same physical forces which operate upon inorganic matter; and the principal of these is *heat*. Added to this, is light, electricity, chemical affinity, etc., operating through and upon certain metals, heat produces electricity; or by passing the electricity around a bar of iron magnetism is produced; and it is equally reasonable that several of these forces acting through organized structures should produce vital manifestations, and under its influence various organs, secretions and metamorphoses may be produced. That there is a certain endowment, shape or form stamped upon all organized matter from its creation, there can be no doubt. Such is the fact with the simplest vegetables as well as the higher human organization. But as the seed of the vegetable is dependent upon the application of light, moisture, and particularly heat, for its development, first, into its germinal state, and afterwards for its further growth, so it is likewise necessary, in the production and maturity of the animal germ, that these influences should be in constant action. In the cold blooded animals, the influence of heat in their functional activity, is clearly apparent to every one. It is not, however, so clear to the comprehension in warm blooded, owing to their maintenance of a more constant temperature, and being unable to exist in those extremes of temperature which affect but little the cold-blooded, but in which heat is equally, if not more important to their equilibrium and health.

We make, then, the *life* of the human being, as clearly dependent upon the maintenance of a certain condition of its parts, and the regular application of these forces to those parts, as we do

the application of these forces under certain conditions of structure, the maintaining forces of vegetable life. And so long as that healthy condition of the different parts of the human organism is maintained, which is essential to the development of life, the due application of these forces, heat, electricity, chemical affinity, etc., will maintain life. Therefore if life should be suddenly suspended by a cause which does not materially disturb the structure and relations of the vital organs, and the lapse of time or suspension is not sufficiently long to produce these disturbances, then the due application of these forces and mainly that of *heat* will reinstate the individual to the living condition: such is the case in fainting, asphyxia, etc. And the only reason why life cannot be recalled into action under a much greater variety of circumstances, is owing to the fact that the causes of death produce too great a disturbance either in the structure or the relations of organs. And were it not for the extreme delicay of the nervous system and other organs of the higher animals, rendering it impossible thus far to procure a menstrum that will preserve them intact, no doubt but that fanciful wish indulged in by Dr. Franklin of being barreled up, for half a century, in alcohol and then restored to life, as the insect is by the heat from the rays of the sun, might be realized.

The great French Physiologist, Broussais, lays down fundamentally the same proposition which we assume, that *heat* is the prominent agent in all the important animal functions; that caloric or heat is the first and most important of all stimulants.—Hear what he says: "1st, animal life can be supported only by external stimulants, and whatever augments the vital phenomena is a stimulant. 2nd, Caloric, whatever may be its nature, is the first and most important of all stimulants, and if it ceases to animate the economy, others lose their influence over it. 3rd, Caloric is necessarily and continually furnished to the embryo by its mother, and to the animal after birth by its lungs; but it penetrates casually by all the inlets. The animal derives it from two general sources, the media in which it is placed, and from foreign bodies received within it, including oxygen. 4th, if the system be deprived of caloric for a certain length of time, all the preservative, recuperative and sanative phenomena cease. It is the same also as respects oxygen. 5th Caloric brings into play the unknown power which constructs the organs. This power forms them from nutritive materials, and conducts free fluids into their interstices. The organs or the solids, as well as the fluids, are termed animal matter. We cannot conceive of this matter

distinct from the power which regulates it and fashions it into organs."

INCREASED EVOLUTION OF HEAT NECESSARY IN THE CURE OF DISEASE.

Seeing that *heat* is the great promoter and support of all animal action, we are naturally led to inquire what should be the tendency of this power in case of disease. If nature is entirely dependent upon it as a motive force in the moulding as well as activity of organs, as is justly remarked by the author quoted, is it not most reasonable that this same influence should be called in aid of weakened functions and decomposing organs?

And will not a proportional increase of this power be demanded as depression from disease advances? No proposition seems clearer to our mind than that an equilibrium can only be maintained in the human system, under depressing influences, by an increase of the recuperative energies of the system; and these being dependent, as is justly remarked, upon caloric or heat, it must likewise be increased.

The food and the atmosphere, or the carbon of the one, and the oxygen of the other, being the elements when chemically combined, from which this motive power is derived, it must be evident that an impure atmosphere and deficiency in the digestive function must diminish this force, upon which the health of organs is dependent; or produce that condition which Dr. Thomson says, is the cause of all disease—*a diminution of heat.* And this is evidently correct in this sense—for were the motive power to remain in full vigor, and force upon the organs, those functional conditions which constitute the normal state would be maintained, and thus ordinary disease-engendering influences resisted. From whatever cause disease may result, its primary impression or effect is to depress this motive power. This is the case even in local mechanical injuries. This assertion may be more clearly comprehended, by the remark that the generation of this motive power or heat, is itself, the result in part of the functional activity of the organ injured; consequently, it must be lessened or depressed by the injury. And this process of reasoning is not at all invalidated, by the fact, that by means of sympathy more heat is generated in contiguous organs, by an increased functional activity; or that more heat should be the result of an increased sympathetic action on the part of the balance of the entire system, for such is often the case in general fevers called into action by local injuries.

Nor does the great heat in the injured part at all weaken the position, for this is produced by a combination of circumstances which *could only result from such original depression.* First, by the tendency of the sympathizing organs to concentrate a greater amount of this motive power in the injured part for its restoration. And secondly, by the decomposition of the part itself. The first of these modes of increasing the heat, is evidently sanative, and if its power be sufficiently great to re-establish the circulation in the capillaries of the part, will prove successful in the cure. The second mode of increasing the heat, we view in a different light, it being dependent solely upon the decomposition of the solids of the part—and setting free what we sometimes call morbid heat, meaning, however, by the use of this term, the manner in which this heat is generated and retarded rather than any intrinsic morbid character in the heat itself.

But it may be asked, is not heat equally serviceable, whether generated by one mode or another, in securing functional activity? We apprehend that the principle of heat is the same, however generated, but it is well known that the manner of its application to the human system has much to do with the character of the influence it produces upon that system. Such modifications are witnessed in its application in connection with vapor, water or other medical agents in its inhalation, etc., etc. In addition to this, it may be remarked, that the decomposition by which it is set free serves as a check to any good that might result; or the one depresses more rapidly than the other restores, while heat set free in contiguous organs and by functional activity unites with the blood and nervous stimulus and flows with the former into the part injured. This circumstance we apprehend constitutes the distinguishing difference in its results.

We have elsewhere remarked, that by means of this rapid decomposition the amount of heat and carbonic acid gas may accumulate to an oppressive degree, though the main supporter of life, it may be accumulated or applied to the destruction of life. This is the case with every good thing. But such a state of things is never the result of merely vascular excitement, nor the generation of heat in the natural mode, for when thus evolved it carries with it the influences which eliminate morbid materials from the system and relieve all injured parts into which it can find free ingress and egress, even though the injury may amount to a perfect destruction of the tissue. And in all such parts as may be cut off from such circulation the heat is below the normal standard, unless

produced by the morbid process of decomposition. Hence we are further strengthened in our position, that fever and inflammation, or the increased vascular action and the heat dependent thereupon are sanative in their tendency and results, and should always be promoted as the natural remedy for disease.

WHY VASCULAR EXCITEMENT DOES NOT ALWAYS CURE DISEASE.

The inquiry, no doubt arises in many minds, that if vascular excitement is curative in its tendency, why it does not more readily overcome disease in the higher grades of its action? This is altogether a very reasonable inquiry, and one which should be duly investigated and answered. It is for the very purpose of answering this and many other difficult points connected with this subject, that we have undertaken to write this essay; therefore, it is not our purpose to shun the difficult points, but rather to discuss them in preference to others of easier solution. We do not say this boastingly, nor with a view to impress our readers with our own self importance, for we lay claim to no extraordinary talents, but simply claim to solve to some extent these mysterious problems by an application of those natural laws first promulgated by Dr. Samuel Thomson, and subsequently illustrated by many physiologists and pathologists.

We have already stated the fact, that in inflammation, and we may also add in fever, that there is less circulation in the capillaries of the diseased parts, than in the healthy state. Those who may doubt this statement need only read the microscopical observations of those who have investigated this subject, to obtain ample proof of the highest character as to its correctness. This being the case, it must appear evident that there is a deception from the external appearances, as to the actual amount of action or circulation in these conditions; and we must be pardoned for the remark, that it is this deception that has led astray our Allopathic brethren. We claim then for increased vascular action, the power as well as the purpose, to remove disease; but how can it be expected to accomplish this purpose, when no such increased action is going on, in at least half the circulatory apparatus, and that portion of it too, in connection with which, most of the more delicate and important functions are performed? Such an expectation would certainly not be a legitimate conclusion from the proposition and facts of the case. But give us an excited circulation throughout the entire circulatory system, with a proportionate increase of heat as the result of such action, throughout the same, and

we will guarantee the results as most favorable to the recovery of the patient. And would not this condition be emphatically fever *per se?* And give us an increased capillary circulation, with a normal action of the blood through the heart and larger vessels, and the result of such increased action will be decidedly beneficial. This state would evidently constitute but a partial *fever*, and the effects would be less beneficial than in the general fever. But suppose the partial fever is confined to the heart and larger blood-vessels, which is generally the case; what is the duty of the physician?—evidently to make the fever general, or equalize the circulation, as it is often expressed, which is the same thing. And why? Because the fever in the larger vessels, though laboring to change the solids, from that of a diseased to a healthy state, is prevented from the accomplishment of such purpose by being denied even a *free* circulation through those vessels in which this change can alone take place. A most labored effort might be made to rescue a friend from a perilous condition, but if the labor consisted in endeavoring to overcome or remove some barrier which prevented your reaching a position where you might be of service, it is evident that you could not succeed in rescuing him, though your efforts would certainly be intended for that purpose. And so with the partial fever. But suppose you called for aid to carry out your purpose, would you expect or think it proper for such aid to reduce your strength, or to increase it, to enable you to remove the barrier? So in the fever, should it be increased in its power to overcome the obstruction to its free passage into the capillaries, or should its power be lessened? This is evidently a fair illustration.

In what is called ordinary fevers, and particularly, in the lower grades, as typhoid, etc., when we intend to include the entire circulation, it would be incorrect to say that there was an increased vascular excitement, for such would not be the fact. The action of the heart and larger vessels might be increased, but the capillary vessels being partially dormant, would constitute an offset to the increased action; and in most of the lower grades would greatly over balance such increased action, so as to constitute really a want or deficiency of action, so far as the whole system was concerned. Then why will learned men persist in calling such cases fever, when such term means increased heat or action.

In such cases, the circulation being below the normal standard, taking the entire circulatory system into view, there must be less heat generated by such action, than in a state of health. Yet the

surface is unusually warm. This increased temperature then must be the result of the decomposition of the solids, which sets free in addition, a large amount of carbonic acid gas; and this, together with the heat, being retained in the parts where it is so liberally and so morbidly generated for too great a length of time, proves depressive rather than invigorating.

It seems to be a law of the animal economy, that heat after being retained a given time should be eliminated, to give place to a freshly generated supply; else, why its continual generation and elimination in a state of health? Hence that which is retained an unusual time, for want of action in the eliminating vessels to carry it off, produces a morbid tendency. And this we may state is an additional reason to the one previously offered, for calling it morbid heat.

The actual injury to the system, however, from such retention is evidently referable to the presence of carbonic acid and other noxious substances which may be and are retained with the heat. And to eliminate these, the heat must likewise be eliminated.

Dr. Thomson formed a very correct general conception, of both the condition of disease, and its mode of relief, when he directed us to raise the internal heat, and lower the external, though he was ignorant, no doubt, of the precise pathological conditions which made such a course of treatment necessary, or the exact phenomena occurring in its accomplishment. To raise the internal heat, as he expressed it, consists simply in aiding the partial fever, when such is present, in diffusing itself throughout the entire capillary vessels, and thus generating as well as causing to be appropriated a largely increased amount of heat, by putting in play, by means of the increased circulation, those functions charged with such duties. The reduction of the external heat is always the natural result of stimulating those vessels to action which so regularly pass it off in the healthy state. So the results of this course of treatment, are first the generation of an increased amount of heat by the freer circulation of the blood in the capillaries; and secondly, the application of this increased amount of heat to the sweat-glands—thereby increasing their action in carrying off the external heat, which had been generated by the decomposition of the solids. This increased action also serves the purpose of checking the further progress of such decomposition, and of course this mode of the further generation of this oppressive heat and carbonic acid.

His mode of accomplishing this most desirable change, is well

known to be, by the use of diffusible stimulants, both internally and externally; the application of cold water, etc., the good effects of which, in many conditions of disease, millions of persons have realized during the past half century.

But disease always produces as its *primary* impression, a diminution of heat; and such would continue the condition during the presence of the disease, were it not for the recuperative efforts of the system, and the decomposition resultant upon the lowered vitality of the diseased parts. As to the part which decomposition has in the development of heat, we have perhaps, been sufficiently explicit—keeping in mind, however, that its results are never beneficial, owing to the causes before mentioned.

SANATIVE MODES OF GENERATING HEAT.

But it becomes necessary to notice more in detail the mode of generation of that heat upon which we conceive the system dependent for restoration to health, which when developed, we call fever or inflammation. It is unnecessary to elaborate the idea of a conservative principle in the human system, for this is universally admitted, and is manifested in various ways, even in the desire for food. So when the necessity for a greater amount of heat is felt in the animal economy, it is as natural for this capacity or principle to be exerted for the production of the requisite supply, as it is for us to take more food when hungry. And should this principle not be too far exhausted, and the materials furnished it, it will as certainly produce the requisite quantity, as will the hungry man satiate his appetite when ample food is at hand with ample power to use it. In the first place, however, it may be remarked, that it is often the case that the conservative forces are so far overpowered by the invasion of disease, as to render them incapable of acting upon the ample materials at their command; in which case direct diffusible stimuli are demanded to strengthen them.—The materials to be consumed in the production of heat, are the oxygen of the atmosphere and carbonaceous or fatty matter of the system. In the healthy state, the food furnishes a constant supply of the latter; but in disease where digestion is suspended, the fatty or solid parts of the body are consumed for that purpose: hence one cause of the rapid waste of the system in fever. But to attempt to economize such waste, would be like the drowning man abstaining from all efforts to rescue himself from his perilous condition.

Heat, in the diseased as well as healthy condition, is produced at the constant expense of organized matter.

It would be equally reasonable to suppose that the furnace can be kept in blast without the consumption of fuel, as to suppose that the same principle can be generated in the human system for its sustenance, without the consumption of the same primary elements. Therefore if they are not furnished from without, or by means of food, the substance of the body containing the necessary elements must be drawn upon.

Heat is the great dynamic force of all organized matter, while the conditions of the organization are the material force, and that which developed in the animal organization, the vital forces. In this train of reflection, however, we are naturally led to a first cause or creative power, at whose will these conditions and their relations were called into existence; and under the wise arrangement of these provisions not a single atom of matter is actually destroyed, but only caused to change relations. The vegetable seed after it may have lain dormant for ages, is under the influence of heat and moisture called into action, either into fructification or decomposition, as its condition may warrant. If the former, it proceeds to fill the measure of its species, to furnish new material to supply food for the animal creation: or it may complete its term of existence and decompose and reunite with its mother elements, and serve as food or manure for a new generation of its own species, or as it has done in some instances, form beds of coal, from which heat may be derived to supply the wants of man.

We must here introduce a beautiful illustration of the *dynamical* and *material* forces of organized matter from Prof. Carpenter's introduction to the Fifth Edition of his Physiology.

"Thus in a steam engine, we see the dynamical agency of heat made to produce mechanical power, by the mode in which it is applied—first, to impart a mutual repulsion, to the particles of water and then, by means of that mutual repulsion, give motion to the various solid parts of which the machine is composed.

"And thus, if asked what is the cause of the movement of the steam engine, we distinguish in our reply between the *dynamical* condition supplied by the heat, and the *material* (or assemblage of conditions) afforded by the collocation of the boiler, cylinder, piston, valves, etc. So, again, if we are asked what is the cause of the movement of a spinning jenny, we refer to its connection by bands or wheels with some shaft, which itself derives its power to move from a steam engine, or water wheel: these material col-

locations here again serving to supply the conditions under which that force becomes operative. In like manner, if we inquire into the causes of the germination of a seed, which has been brought to the surface of the earth, after remaining dormant, though having been buried deep beneath the soil, for (it may be) thousands of years—we are told that the phenomena depend upon warmth, moisture and oxygen: but out of these we single warmth as the *dynamical* condition; whilst the oxygen and the water, with the organized structure of the seed itself, and the organic compounds which are stored up in its substance, constitute the *material*.

"A strictly scientific inquiry, then, *must* recognize dynamical agency, as well as material condition; and it will be found that this is peculiarly requisite in the science of life, which has been pursued by some as if it were a sufficient account of every phenomena not otherwise explicable, to refer to the "vital principle;" whilst others have endeavored to reduce all physiological causation to a set of material conditions, maintaining that life entirely depends on "organization," and that the hypothesis of a vital principle is consequently unnecessary and unphilosophical. Others, again, who have recognized the operation of physical and chemical agencies in the living body, have maintained that all vital action is but a peculiar manifestation of heat, mechanical power chemical affinity, and the like; and have thus sought to break down the barrier between the organized and inorganic creation."

The author has elsewhere endeavored to show, that we have evidence of the operation of a *power* in the living body, whose manifestations are so different from those of any of the physical forces that we cannot reasonably refrain from giving it a distinct designation; and that this "vital power" may exert itself in a great variety of modes, and may consequently produce a great variety of phenomena, according to the material conditions of its operation, just as (though the comparison be somewhat clumsy) the mechanical power which turns the engine shaft in an extensive factory, is rendered efficient for a great variety of purposes, according to the construction and arrangement of the several machines through which it is distributed. And further, he has attempted to prove, that the source of this vital power is to be found, not in the organization of the being itself, but in the forces which operate upon it *ab externo*; and that it has the same close and intimate relation with the heat, electricity, chemical affinity, and other agencies of the inorganic world, which they have been proved to have with each other: so that, just as heat acting upon water generates me-

chanical force, or when applied to a certain combination of metals excites electricity, so when brought to bear upon a torpid animal or upon a seed (in which the material conditions of this activity are present,) it manifests itself as vital force, and is the immediate dynamical condition of the phenomena of growth, development, etc.

FUNCTION OF THE SKIN.

In order to strengthen the arguments, and apply them with more force, to the human organization, we shall now proceed to the investigation of some of the more important functions of the system. It will be our purpose to consider them somewhat separately, at first, and afterwards, jointly, and close with our application of the natural deductions of such an examination, as to their relative duties, and great purpose. In order to do this satisfactorily it will also be necessary, to notice briefly the primary structure of some of the tissues and organs. It is difficult to arrange the preference which must be made in the discussion of the functions of the human system. It is true that some perform a larger amount of duty than others. But between several of the more important it is difficult to say which is of the most importance to the vitality of the human body. Therefore, as to precedence, we shall proceed as our fancy dictates, and endeavor to show to some extent the relative importance of each as we proceed without regard to whether it be first or last considered.

As of paramount importance to that of many other functions which have received very special attention from pathologists, we shall take up that of the *skin*, which, in most instances, has by common consent been almost overlooked, as an excrementator of the system. And we select this to be first considered from the very fact that it has been so much underrated; and that a due regard to its functional and excrementitious character, has been a marked characteristic consideration of the reformed school, which, as yet, they have seen no reason for changing.

The *sudoriparous glandulæ* consisting the main, if not the only outlet to excrementitious matter upon this surface, will be the part to claim our particular attention. They are located rather "beneath than in the cutes" or true skin. They consist of a convoluted *tube* with a free open extremity upon the surface constituting a gland; surrounded and interposed with a great number of capillary blood vessels, from which they receive the fluid matter con-

stituting their excretion—or the perspiration. According to the estimate of Mr. Erasmus Wilson, they are very numerously distributed over the entire surface of the body, at the average rate of twenty-eight hundred for every square inch, amounting in all, to seven millions. And he estimates their entire length when united to be equal to twenty-eight miles.

Seguin estimates the entire amount of fluid lost by the skin and pulmonary surface to be eighteen grains per minute. Carpenter says, "there is reason to believe that there are one hundred grains of azotized matter excreted from the skin daily." Very little attention has, however, been given the skin by experimenters; much less, indeed, than its acknowledged importance demands. Therefore, it is but reasonable to conclude, that what has been stated is rather under than an over estimate of its relative importance; especially when we take into consideration the fact that the dominant practice of the day, is decidedly to the neglect of this function. If proof were wanting to establish the excrementitious character of this eliminator, it may be found in the fact, that when suppressed, by cold or other causes, an increase in the flow of urine is indispensible to the maintenance of health.

Their very great number, and their diffusibility over the entire surface, together with their bountiful supply of capillary blood vessels, peculiarly fit them as blood drainers of any waste matter that may accumulate in that fluid; and that too, before it had passed and repassed numerous times through the system, as must be the case in reference to many other eliminators of the body.—

The disintegration which is constantly going on for the renovation of the system, taking place, as it does, directly in connection with the capillary vessels; can be most judiciously removed by this numerous set of emunctories. In addition to the secretory action of sudoriferous glands, Professor Carpenter recognizes a ditrect *transudation* of fluids from the surface. This he says, may be promoted by the application of heat to the surface, etc.—Page 612, 6th Edition, Special Physiology. On the same page, he says, "the debilitating effects commonly assigned to profuse perspirations must be attributed to some other causes; and these it does not seem very difficult to find. Thus, the great fatigue which is experienced as a consequence of muscular exertion in a heated atmosphere, may fairly be set down to the diminished activity of the respiratory processe at high temperatures; and the colliquative sweating of hectic fever is obviously not a cause, but a consequence, of the debilitated state of the general system." This ex-

planation is predicated upon the small amount of oxygen inhaled at high temperatures, owing to the greatly expanded condition of the atmosphere. This oxygen is one of the main elements upon which the system is dependent for its animal heat, or its peculiar supporting stimulus, for it matters not how much external warmth may be applied, the peculiar constitution of animal organizations are such, as to require the generation of this principle within, in order for its full life or strength-maintaining powers to be realized.

The idea that sweating is a great debilitant, has had much to do with the prejudice existing in many minds against the reform practice: therefore, we are much pleased to see Prof. Carpenter place this subject in its proper light. He further says, "that it is very probable that in many forms of fever, the suppression of the perspiration is a *cause*, rather than an effect, of disordered vascular action; for there are several morbid conditions of large parts of the surface, in which suppression of the perspiration appears to be one of the chief sources of danger, having a tendency to produce congestion and inflammation of internal organs. From the experiment of Dr. Fourcault, it appears that complete suppression of perspiration in animals, by means of a varnish applied over the skin, gives rise to a state termed by him, "cutaneous asphyxia," which is marked by imperfect arterialization of the blood, and considerable fall of temperature—and which, as it produces death in the lower animals, would probably do the same in man. A partial suppression by the same means gives rise to febrile symptoms, and to albuminuria. There can be no doubt whatever that imperfect action of the cutaneous glandulæ, consequent upon inactive habits of life, and want of ablution, is a very frequent source of disorder of the general system; occasioning the accumulation of that decomposing organic matter in the blood which it is the especial office of these glandulæ to eliminate. Hence the due maintenance of health requires that this excretion should be promoted by the use of the natural and appropriate means just referred to; and this is the more necessary, when from any cause, the function of the kidneys is imperfectly performed. There are many diseased states, moreover, in which there appears to be a special determination of the *materies morbi* to the skin; and in which, therefore, the use of the means that promote the cutaneous excretion constitutes the most efficient method of eliminating them from the blood."

And on the same page, in a note upon the above, the author

further remarks: "The practical value of active diaphoresis in many febrile diseases, is well understood by the native practitioners among the negroes of the Guinea Coast, who according to Dr. Daniel, (*Medical Topography, and native disease of the Gulf of Guinea*, pp. 119-20,) make use of it most successfully in the treatment of adynamic remittent fevers. Dr. Daniel states that having himself, had abundant experience of its efficacy, he has no doubt of its superiority in these cases to the ordinary practice of venesection, saline purgatives, large doses of calomel, etc. And he has repeatedly stated that one great secret in preserving health in tropical climates lies in due attention to the cutaneous functions." That Dr. Daniel, as well as Dr. Carpenter, has set forth correct views upon this subject, is a fact that has long been known by the experienced Reformers of this country. They might well have gone further, and stated that "free diaphoresis" was one of the most effectual means for the removal of any and every variety of disease; but more especially all such as are dependent upon a lowered vitality and vitiated state of the fluids in the system generally.

It is extremely difficult to invoke any other set of vessels to act on the blood so thoroughly, as that of the cutaneous, for the reason, that in disease, there is nearly always more or less congestion and obstruction to the free passage of the whole amount of the circulating fluid, and consequently emunctories which are few in number, or single as that of the liver, cannot eliminate from the entire amount of this fluid—its putrescent matters. Neither can the kidneys perform the duty although, in most instances, they are vicarious of this function. In all general fevers, it is now almost universally admitted by intelligent pathologists, that there is greater or less stagnation of the blood in the capillaries: and this is emphatically the case in that form of fever called congestive; therefore, a numerous set of emunctories distributed directly in contact with the capillaries, seems to be one of the wisest arrangements for the relief of disease; and how this fact has been so wofully overlooked, by the great body of the Allopathic practice, is a matter of the greatest astonishment; and is, alone, a sufficient reason for a reformatory movement in the practice of physic.

But we are not done with our author upon this subject; he furnishes us additional evidence in support of the great importance of attending to the due action of these glands. And we are almost induced to believe that if he lived in America, he would constitute one of the champions of the great reformatory move-

ment in medicine, which is so rapidly sweeping over this free country. But on page 625, he says: "It would seem that the cutaneous respiration, small as it is, promotes those molecular changes upon which the maintenance of animal heat depends; for it was found by M. M. Becquerel and Breschet, that when the hair of rabbits was shaved off, and a composition of glue, suet and resin, (forming a coating impermeable to air) was applied to the whole surface, the temperature rapidly fell, notwithstanding the obstacle thus offered to the evaporation of sweat, whereby it might be supposed the temperature of the body would be considerably elevated.

"In the first Rabbit, which had a temperature of one hundred degrees before being shaved and plastered, it had fallen to eighty-nine and a half degrees by the time the material spread over him was dry. An hour after, the thermometer (in the muscles of the thigh and chest) had descended to seventy-six degrees. In another rabbit, prepared with more care, by the time the plaster was dry, the temperature of the body was not more than five and a half degrees above that of the surrounding medium, which at that time was sixty-nine and a half degrees; and in an hour after this, the animal had died. These experiments place in a very striking point of view, the importance of the cutaneous surface as a respiratory organ, even in the higher animals: and they enable us to understand how, when the secreting power of the lungs is nearly destroyed by disease, the heat of the body is kept up to its natural standard by the action of the skin. A valuable therapeutic indication, also, is derivable from the knowledge which we thus gain, of the importance of the cutaneous respiration; for it leads us to perceive the desirableness of keeping the skin moist, in those febrile diseases, in which there are great heat and dryness of the surface; since secretion cannot properly take place through a dry membrane, of the relief afforded by cold or tepid sponging in such cases, experience has given ample evidence."

That the cutaneous surface is an important adjunct, in the production of animal heat, is a doctrine, which we have constantly taught for the last ten years. And the more we investigate the subject, the more thoroughly convinced we are of the correctness of the position. Indeed a very simple experiment puts this question beyond dispute. Insert the hand and a portion of the arm into a receiver, and make it air tight by means of a cover closely fitted round the arm, and after remaining thirty minutes withdraw it, and analyze the atmosphere contained, and it will be found that a

portion of the oxygen has been absorbed, and carbonic acid thrown out. Proving beyond cavil, that in the human system the skin, in part, is a respiratory organ.

Taking this fact in connection with its profuse elimination of excrementitious matter from the blood—and it justly claims of the therapeutist the highest consideration in the treatment of disease.

There is quite a mistaken idea, among a portion of the profession, in supposing that the diseased organ or tissue, is the proper one to eliminate foul matter from the blood. When any given organ is weakened and consequently diseased, its functions must likewise suffer a retardation in their action. But from the very fact of their debility, they are less able to perform an extra amount of labor in the removal of excrementitious matter. Suppose for example, the liver to be in a dormant condition, it should by no means be relied on to purify the blood by being excited to powerful action; for such excitation cannot, in its weakened condition, be borne without serious injury to its subsequent action; any more than a weak man can perform an extra amount of labor, without damage to his constitution. Yet, in obstructions of the liver, this is the constant practice resorted to by a certain class of physicians, who rely almost exclusively, as a cleansing agent, upon large doses of calomel. And thus, thousands of subsequent liver complaints are produced. In such a condition, the true policy would evidently be, to excite that class of emunctories which are suffering least from the disease; whilst those suffering most should be gently stimulated to normal action only. Consequently, in obstruction of the biliary system, the fluids of the body should be cleansed by an extra action of the sweat glands and the urinary organs.

Sanctorious, an old writer and physician, estimated the relative amount of morbid matter carried off by these glands to be five parts out of eight of the entire amount eliminated from the body by all means. But this estimate, no doubt, is too high. Modern physiologists, however, have variously estimated it at from one half down to one-third. Even if we take the latter amount, this function is one of the first importance to the health of the body; for in addition to its regular discharge of morbid matters from the economy, its calorifying function is of great importance in the maintenance of health. And its different functions are so arranged, relatively, that the latter cannot be efficiently performed, without a reasonable action of the former; owing to the fact before mentioned, that a dry membrane is not adapted to such purpose.

In all serious affections of the lungs, it is altogether necessary

that the skin should be active and full in the discharge of its functions; both for the purpose of calorification, thus puryfying and increasing the stimuli of the blood, and for the removal of morbid matter which is inclined to centre upon those organs, by virtue of their weakened condition.

In most forms of general disease, the great danger to the patient is the condition of some of the more internal and vital organs, and post mortem examinations reveal the fact that these organs contain a large amount of morbid matter, and whether this matter is the result of the decomposition of such organs, or whether it has been collected from the system generally, and centered to those weakened parts, is a matter of little consequence in a therapeutic point of view, the great object being to prevent or remove such accumulation. And for this purpose, both experience and theory point to the functions of the skin as most efficient for this purpose. While it accomplishes this important purpose, in response to judicious stimuli, another object of not less value is gained, namely: the increased flow of blood in the capillaries of the diseased parts. By pursuing this course, two important purposes are gained by one simple process, while I might add a third in the absolute increase of the recuperative power of the system; while on the other hand the drastic system of purgation (often by poisonous medicines) usually resorted to, gains but one of the objects above mentioned, while it prejudices the others.—Let us explain. Calomel is given with a view of disgorging the liver, and through that means cleansing the blood. This, to a certain extent, it may accomplish, but at the same time it invites the determining powers to the internal and more diseased and weaker organs, while it manifestly weakens the recuperative powers of the body, and subjects it to be poisoned. This depression of the vitality of the system may be borne in ordinary cases, but in many conditions the physician over estimates the vitality of the patient, and the result is fatal. But no such injury can result from the more natural process above indicated. In fact, the one is in accordance with the physiological mode of removing morbid matter from the system, or in other language, brings to bear all the forces or emunctories of the system for its relief, while the other excites one at the expense, in part, and when a poison, entirely, of the others; for whatever excites one organ otherwise than by adding strength and vigor to it, must do it by centering upon the excited organ the energy and vigor which properly belong to others. And when such excitation ceases, debility generally follows. Such is generally the history of the use of calomel.

The most important object gained, however, by calling the sweat glands into action, is the free circulation of blood that must take place in the capillaries whenever free perspiration is produced. These two circumstances constantly accompany each other, for you cannot excite the sweat glands to a free action except through the medium of the blood, as it circulates in the capillary vessels which interpose and surround these bodies; and that there is more or less stagnation of the blood in these vessels, in all forms of disease, there is now not the least doubt. And as to the truth of this assertion, it matters not how great the excitement may be in the heart and large arteries, or how high the heat may rise in local parts or in the general system. Such heat and excitement, however, may and do often overcome such stagnation, but in most forms of serious disease, are not likely to do so *effectually* without the aid of artificial stimulants, at least within a reasonable time. In connection with these statements it is proper to keep in remembrance the fact that much of the heat generated in disease is the result of the decomposition of the tissues, which afford no support to vitality. Apart from this mode of generating heat, it is a matter of serious doubt whether there is as much heat generated during the continuance of any serious form of disease requiring medical aid, as is generated in a state of health, while the condition of the system demands a greater amount.

ALL SANATIVE MEDICINES, AS WELL AS FOOD, ACT BY VIRTUE OF THEIR STIMULATION.

If we recur to the agents which are in use for exciting perspiration, we find their uniform effect is to stimulate the system either primary or secondarily.

If you resort to means to equalize the circulation, they also act as stimulants upon some or other of the tissues; and we doubt whether such equalization can be produced without the sweat glands being stimulated as the result.

We haze puzzled our brain a great deal to find a single therapeutic action which tends to the cure of disease, which does it otherwise than through stimulation, and as yet have not been able to find a single one. Others may imagine they have been more fortunate, but if they scrutinize the nature of the diseased condition closely, the presumption is they will have reason to change their opinion.

Is there a solitary article of food which actually supports the animal body, but what stimulates some of its parts? We have

never been able to realize any other mode by which food could render any support whatever.

In fact, we know of no action taking place in organized matter, but what is dependent on stimulation, and such we believe to be the general conviction of scientific men.

But the inquiry may arise, may there not be too great a stimulation from food? To such inquiry, we say no. If too much food be crowded into the stomach, the system fails to completely digest and assimilate it, and the uniform result is a depression of some if not all the emunctories of the system. We have seen and treated cases of plethory, and we have uniformly seen a depression of some of the functions of the body—proving clearly that there was want of stimulation upon such functions instead of receiving too much. We have yet to see a single form of disease in which every function of the body was overacting; but on the contrary, want of action has always been the great difficulty to be overcome, and we have yet to see the class of physicians who seek in any other way to restore the patient, other than by stimulating immediately or remotely such depressed functions. Then why resort to the stultifying assertion, that there is too much action, when their very object is to produce more? Or why attempt to hold in check the only excitement which the recuperative powers of the system are capable of bringing to bear for the stimulation of such depressed organs or functions, while, taking the circulation as a whole, there is *less* action, as has already been shown, than in the healthy state? Why not resort to such means as will aid the increased action to extend itself into the minuter vessels of the vascular system, while other and important dormant functions are to be put in play by the increased stimulus of the blood?

The effects of moderate poisons, as those arising from stagnant pools, etc., also the effects of cold, always fall upon or impress the more delicate vessels and functions of the system. The capillary vessels never escape such influences, and suffer a depression and lowered vitality as the result; the recuperative powers of the system then, if called into action at all, must be developed by other and more powerful organs and functions which have not thus suffered. And such we find to be always the case; the heart and larger arteries sympathizing with the injured organs are excited to greater energy and power of action, with a view of increasing the circulation through the injured and small vessels, but owing to the extent of injury, they, the small vessels, cannot respond in action to a sufficient extent to accomplish the sympathizing object of the

larger vessels, and thus the effort is made to a great extent unavailingly, as is often the case from one friend towards another.

Is not this precisely synonymous with what occurs in the case of a broken bone? The neighboring and sympathizing vessels take on an increased action, and supply thereby an increased amount of richer blood to the fractured part, and through its agency the injury is restored; and if the one should be suppressed, should not the other? The true policy in all such cases, where the depression is considerable, will be to resort to such medicinal agencies as will aid the fever in extending its genial influences by a free capillary circulation throughout such injured parts, when the difficulty will be overcome and the excitement will gradually subside, from the fact that the condition of things which called it into existence has been removed.

This aid may be given in various ways, and by various means, the most efficient in cases of a common nature being those remedies which by their diffusible stimulating properties produce increased perspiration. Lobelia inflata in many cases answers the purpose better than any thing else, from its double property of stimulation and relaxation—both of these conditions being clearly indicated—the latter property upon the muscular fibre, the contraction of which may operate as a barrier to the free passage of the blood into the small vessels, by their passage around and among them, while the latter is an indispensible to the inactive and sluggish capillaries. Cold water, in other cases, is of first importance, and fulfils the indications better than any other agent, or at least may be a valuable adjunct. The Vapor bath, under other circumstances, is the better remedy. But, as we have elsewhere shown, all these are indebted to their stimulating properties, either directly or indirectly, for the good they accomplish, increasing the action of the dormant vessels, and thereby supporting instead of diminishing the recuperative powers of the system or fever. It is true, cold water or lobelia may diminish the action of the heart, but such is the result of the increased effort being more generally diffused, or otherwise it accomplishes no good. What good can result to dormant organs by lessening that power upon which they are dependent for a resumption of their action? And who will deny that the action of every organ is dependent upon that of the blood, or that an increased action or greater force is not necessary for the restoration of a weakened organ, than is necessary to maintain the action of the same organ when in a normal condition? Therefore the fever is indispensable, and with-

out it a weakened organ could never be restored. It is nature's mode of restoration, and is not to be violated with impunity.—Any other view of this subject, it seems to us, is contrary to all the known laws or principles of nature.

But another fact which I may not have urged with sufficient definiteness and force, in support of the great importance of exciting the sweat glands in all forms of disease, is that the same action or power which causes sweating, also causes the performance of nearly all the important functions of the animal economy. And there can be no better evidence of a free and healthy nutrition, calorification, etc., than an easy and natural perspiration. Consequently, in disease the promotion of this function aids in the promotion of others of equal importance.

The intelligent reformed physician, then, in the use of sudorifics, has other and equally important objects in view in addition to that of sweating.

There is too much inclination among physicians to rely on special remedies, rather than general ones. In every form of disease denominated fever, whatever its specific name may be, there is a general prostration of a great majority of the functions of the body; a decided want of action rather than too much action; consequently the class of diffusible stimulants are peculiarly appropriate as general promoters of action, without the unpleasant connection of any tendency to prostration, as is the case with purgatives and many other special stimulants.

We might notice the sebaceous, ceruminous, and other functions pertaining to the skin, but these are not special eliminators of morbid matter, and therefore do not claim our attention in this connection. Without considering the subject exhausted, we have said sufficient for the length of this treatise, and shall therefore proceed to the consideration of other functions.

FUNCTIONS OF THE INTESTINAL GLANDULÆ.

Situated within and beneath the mucus membrane of the intestines, are numerous glands somewhat similar to those of the skin, and answering the purpose of receiving from the blood much of the decomposed and excrementitious matter of the system, which they pour into the intestinal canal, and which makes up a portion of the fecal matter of that cavity. The Peyerion glands constitute a portion of these, while there are other salitary glands scattered along the canal, which no doubt exercise this particular function. Until recently, however, this doctrine has not been set forth, but

it is one of the evident physiological conclusions, for there is no other way of accounting for the large amount of morbid matter which accumulates in the intestinal canal during sickness, when very little, if any food has been taken, and frequently after the canal has been entirely emptied of any nutriment that may have been eaten.

Without magnifying their importance, they certainly answer the purpose of pouring into the intestines most of the foul matter which passes with the blood through the contiguous tissues.

This we consider their legitimate influence, but their area of action is often extended under the influence of disease to a much greater extent than this. Indeed, in some conditions of the body, most of the fluids, whether morbid or otherwise, of the entire system, seem to center upon and find passage through these glands, constituting colliquative diarrhœa, cholera, etc.

Drastic cathartics produce a similar influence. And from whatever cause this internal determination of the fluids may occur, the effect is to diminish the action of the sweat glands in a like ratio with the increase of those of the intestines. There is this difference, however, to be observed in the effects upon the constitution. While a profuse action of the sweat glands under the influence of diffusible stimulants is most generally confined to the morbid matters of the blood, and thereby rather strengthens the body, the intestinal glands, under a strong invitation from drastic medicine, pour out indiscriminately healthy as well as foul matters of the blood, and thus greatly prostrate the strength.

This difference, however, must be entirely owing to the character of the medicine used to produce this state, for under the influence of diffusible stimulants their action is slightly increased without any such tendency, and even by some of the milder purgatives in moderate doses.

But diffusible stimulants not being sufficiently specifically active to meet the various indications of disease, the practitioner is compelled to resort to the aid of mild purgatives, and under a false view, many resort to such drastic agents as are wholly inadmissible.

It is, undoubtedly, a matter of serious regret with the profession, that no agent has yet been discovered which is capable of *eliciting positive* action of the intestinal glands, with the same impunity that the sweat glands may be excited to produce perspiration. But perhaps we should rather console ourselves that the latter is the fact, rather than that the former is the exception,

seeing that it is the common lot of man to receive good and evil mixed.

But it is unquestionably true, that the action of these glands must be looked to in most forms of general disease, as among the most important eliminators of morbid matter from the blood.

And whoever attempts to force the entire morbid products or accumulations of the blood through the sweat glands *alone*, as certainly diverts the natural order of the functions, as though the effort was to force them all into the intestines.

It is only necessary to observe the division of labor among the functions in the normal condition, in the performance of this duty, to see the correctness of the above proposition.

If the intestinal canal did nothing more than carry off the refuse of the food in a state of health, then we should require of it nothing more in a state of disease. But the reverse is certainly true.

If the urine consisted simply of the watery portion of the blood, without any of the debris of the tissues, it would be of much less importance to stimulate the kidneys to increased action, with a view of removing continually recurring causes of disease.

It is always the safer plan, as well as the wiser, to view the functions as they operate in a state of health, to determine the relative duty which should be imposed on each of them in disease, always bearing in mind that those least affected by the disease, are the better able to perform extra labor.

But I cannot omit while in this connection, to disapprobate most strongly the fashionable practice of constantly exciting by strong purgatives the intestinal canal and its glandulæ, to the exclusion of other functions, for the removal of effete matter. Such a course of practice is built mostly on a *one idea* system, and is maintained in gross violation of the present state of medical science.

If any one idea is superior to another, except the sanative character of fever and inflammation, in the reform system of medicine, it is certainly that which teaches the doctrine of giving to each function its respective relative duty in the removal of disease. And it is the only system of physic which has yet given due importance to that point; most others having sought to establish their reputation upon the supposition of their remedies operating by virtue of a power to change chemically or otherwise the condition of the fluids and solids—a futile attempt—for that can only be accomplished through the agencies of nutrition or decomposition.

The alimentary canal occupies a position somewhat central to the body, as well as to the vascular system, and also to most of the softer and more readily decomposed structures; hence it receives more bountifully and directly the products of decomposition. This being the case, to divert them entirely to other outlets would be very unnatural in the cure of disease; and more especially, should they be caused to traverse numerous times the entire round of the circulation.

EXCRETORY FUNCTION OF THE KIDNEYS.

Without doubt the kidneys may be regarded as among the most important excretory organs of the body.

They are peculiarly adapted to the removal of the watery portion of the blood, being less influenced in their action by the changes of temperature from cold to hot, or from dry to wet, than any other emunctory in the body. Therefore it is to these organs that we are more particularly indebted for the uniformity of quantity and fluid constituency of the blood.

But it is not alone to the removal of the watery portion of the blood that we are to look in estimating the great importance of this excretion, but rather to the solid substances which they eliminate.

They seem specially charged with the duty of removing azotized matters, in contradistinction to the liver, which removes mostly carbonaceous.

Some of the most reliable experiments upon the relative waste of the system, give forty-eight and a half ounces of urine as expelled in the day, while the feces amounted to only five ounces, leaving thirty-seven and a half ounces to be excreted by the skin and lungs. Thus making this excretion more than equal to all others. And yet how little attention is paid to this function, as compared with others, in the treatment of disease.

If the secretion is not very materially checked, it generally goes unnoticed by our Allopathic brethren, while the liver is the first and last thing attended to. Indeed, there seems to be a sort of monomania on this subject among our calomel doctors. The feces, as above stated, including bilious matter, only amounts to five ounces per day, compared with forty-eight and a half ounces expelled by the urinary organs, and in disease they may be equally obstructed; and yet the biliary system receives all the treatment, while the kidneys are entirely overlooked. Such an unnatural

practice cannot be otherwise than ruinous to the constitution of man, and calls loudly for a reformation, and we protest against the continuance of such a *one idea* policy in the treatment of disease.

But it may be said that the matter excreted by the liver is more deleterious than that expelled by the kidneys, when retained in the system; but upon an investigation of this subject, such is found not to be the case.

Urea, an important constituent of the urine, is universally conceded by the ablest physicians to be exceedingly destructive upon the nervous system, when retained in any considerable quantity in the blood. It affects either the spinal cord or brain, or both, producing a stupor out of which it is difficult to arouse the patient, and this gradually extends into a state of coma, with fixed pupils and a sterterous breathing, similar to ordinary narcotic poisoning—while secondarily it produces convulsions and a long train of most troublesome symptoms, with considerable suffering and even death.

From the large amount of refuse matter of the system usually expelled in this way, it must be evident to every one that their material obstruction must prove extremely deleterious to the general health, and their restoration to full action the most likely manner of efficiently expelling their foul matters from the system.

It is true that there is a greater complimental relative action between this and some other functions in the body, than is common to other excretions. Such is the case with the sweat-glands; and cases are on record where urine has been regularly secreted and removed by the mammæ, intestines, etc., only showing, however, the absolute necessity of the collection and expulsion of this substance from the body.

The condition of muscular and nervous activity is such, and indeed, we might say of animal life, that these with other morbid materials are formed, and must be regularly removed as a condition necessary to the continuance of health.

To consider organized animal matter as in a stationary condition, or in any way existing apart from continued nutrition and decomposition, manifests a total want of the most essential knowledge of a well educated Reform physician. And this remark is applicable to the results following mental phenomena, as those of the physical life.

Life is a condition made dependent upon a constant change of

matter, and this change involves, first, the arrangement of the simpler elements and compounds into higher and more complex structures, while, secondly, decomposition resolves these into a more isolated and simpler condition than those from which they were composed—suited only, as they again ascend in the scale of elaboration, to enter as components of vegetable structure, on their way to their higher destination of again composing the more complicated animal organs. Thus, life, as displayed in its multiform shades, from the lowest vegetable to the highest animal, *man*, is but the result of this constant evolution of matter, while this change in the combination of the elements of matter is clearly dependent upon the presence of *heat; ergo heat is life*, or the main supporter of life. Dr. Thomson's declaration amounted to little less, or even more than this.

It is this constant change, and the results growing out of it, which makes the secretions and excretions of the deepest interest to the physician; and without a proper knowledge of these, it is useless to attempt an elucidation of these subjects.

The urine, then, is the most prominent product of this change or decomposition of the organs of the body, at least, so far as relative quantity is concerned; and is therefore made up from the waste of the muscular, nervous, and other tissues of the body, being a compound itself, but of a simpler nature than that from the organs from which it is derived, and from its very composition being destructive to all higher organized matter with which it may come in contact.

The same remarks are applicable both to the origin and tendency of other excretions of the body.

It is a law of animal matter, that all of its excretions are reduced to a lower form than that from which they were originally composed, and that such lower forms of matter always tend to reduce the higher structures to their own condition when coming within their influence. This is not only the tendency of excreted matters from animal matter, but applies to the more simple condition of many of the elements when not held under the control of those influences, (as heat, moisture, etc.,) which render them subservient to new organizations. But this decomposing influence of the debris of animal matter upon parts with which it may be in contact, is much greater *during its transition state* than after it is reduced to its lowest elementary form, which mostly takes place after it has been expelled from the body.

The same remarks are equally pertinent to the debris of vege-

table decomposition, and the two constitute the most prominent source of disease.

Taking the urine, then, as constituting one of the largest excretions of the body, (making due allowance for its less deleterious watery portion,) is it not a matter of the greatest surprise that so little attention has been paid to its due elimination during periods of disease?

What the elder writers termed critical evacuations, which they regarded as of such great importance in the relief of the patient, is from none of the functions brought to bear with more force, or in greater quantity, or with seemingly more relief, than from the kidneys. And there is hardly a single case of general disease, when left to run its course, or what is often worse, being aided in overpowering the vitality of the system by the use of poisons, but what a large secretion of urine is one of the first as well as surest indications of recovery.

In intermittent fever, and most other exacerbations of disease, a copious secretion of urine gives evidence of a returning increase of the vitality of the system.

PART III.

PRACTICE OF MEDICINE.

GENERAL OBSERVATIONS.

We propose in our arrangement, to begin with those forms of disease which appertain to the head and spinal column, and then proceed in succession to those parts belonging to the neck, the thorax and the abdomen, to those of the joints, the muscles and the skin.

The present age, in its investigations, has advanced too far into the nature of disease and in Pathology, to attempt the classification of diseases according to their essential nature and affinities.

The simpler and the less artificial we make our arrangement the better it will be, and we wish our readers to understand, that our great object will be in these pages, to collect and arrange from the voluminous and often contradictory records of medical science, whatever may be valuable and useful to our Reform Profession.

We shall labor faithfully to sift the *true* facts from the *false*.—We shall explain the symptoms, elucidate the origin and try to identify the nature of disease, and after this arrangement will follow the treatment, which our own, and the experience of others has found best suited to cure the various ills of suffering humanity.

We shall attempt to discriminate between the important and the trivial, to show the accidental from the essential, the pathological from those that are only vital manifestations, analyze the rela-

tion of facts and from particulars we shall attempt to ascend to generals. We shall then point out those efficient and powerful, yet sanative medical agents which are used by our Reform Profession.

We commence the practical part of our work with Dropsy, since this affection may occur in various parts of the body separately. It may also extend at once to all parts capable of receiving and retaining serous effusions, and it may occupy the universal areolar tissue.

We shall deviate from our proposed order in a few instances, whenever by doing so, we can in any way be aided in our description by similarity of symptoms, or by any other circumstances.—We shall, therefore, describe Fever and its various phases, without regard to this arrangement; the exanthamata and contagious forms of disease we shall place in the last pages of the work.

We shall have little to say of theoretical speculations, since the second part of the book is occupied with these subjects, thus by confining ourselves to Practice alone, we shall be able to give a greater number of forms of disease as well as a more extended description.

DROPSY—HYDROPS.

Description and Causes.—We define this disease to be that state of the system in which the serous membranes secrete their fluid in such excess that the ordinary powers of absorption are inadequate for its removal.

This fluid collection is a cause of various other symptoms which often constitute the greater part or the whole of the patient's distress and danger. The imprisoned liquid, by its weight or pressure, may embarrass important functions, or even extinguish life. The removal of the fluid will frequently restore the patient at once to comparative comfort, or, indeed, to what, so far as his situation is concerned, is for the time, to him, a state of health; although the original bodily cause, of which the Dropsy was a symptom, may remain behind untouched to be again productive of similar consequences under circumstances favorable to its operation.

Sometimes it happens that the bodily change which is the immediate cause of the Dropsy, is slight or temporary; while the patient's comfort and very existence, are compromised by the mere

accumulation of the water; and if this accumulation can be remedied by art, its temporary producing cause may cease, or be removed, or admit of compensation, and so the patient may be strictly restored to sound health. In a dropsical person, then, where disease results from an organic derangement, there are plainly two sets of symptoms to be distinguished, viz: those which depend upon the primary disease, and those which are caused by the collection of water. And these two sets of symptoms differ perhaps, not only in their gravity and importance, but also in their obedience to treatment.

This form of disease is often considered incurable by the Old School authors, but the success of the Reform Practice has been gratifying, for we have found the serous collection and the condition from which it proceeds, both admitting of a remedy. In those cases, however, which are too stubborn of cure, we are always able to remove, or mitigate human suffering to a great extent.

Wherever there is a shut sac, or wherever there is loose and permeable and cellular tissue, there we may have dropsy.

When the cerebal ventricles are distended with water, we express the diseased condition by the term *hydrocephalus*. When serous fluid occupies the pleura or the the pericardium, we say the patient has *hydrothorax*, or *hydropericardium*. If the cavity of the peritoneum be the seat of the collected matter, we call the complaint *ascites*. When the cellular tissue of a part becomes infiltrated with serous liquid, the part is said to be œdematous; and *anasarca* is the name given to the more or less general collection of serum in the cellular tissue throughout the body, especially to œdema of much extent. Under the term *general dropsy*, we signify the simultaneous existence of anasarca, and of dropsy in one or more of the larger serous cavities.

But we wish to call the attention of the reader more particularly to the pathology of this disease. It is a fact that from all the surfaces of the healthy living body, there is continually going on a kind of secretion or oozing forth of fluids. The inner surfaces of the shut cavities, and the partitions of the cells of the cellular tissue, furnish no exceptions to this law. If we examine the interior of an animal just slaughtered, or observe a cavity laid open in the human body, (by accidental injury) we find that their inner surfaces are *moist*, and indeed we may see fluid escape into the colder atmosphere in the form of vapor. We perceive also, that the surface is merely moist. The fluid in these shut cavities, during life and health, being taken back into the circulating blood as

fast as it exudes, the two processes of exhalation and absorption are accurately balanced. The disturbances of this equilibrium would account for Dropsy. So Dropsy may arise from an over-abundant quantity of fluid exhaled, or the amount of absorption may be deficient, or both these deviations from the natural state, may occur together. It is obvious that Dropsy will ensue whenever the exhalation takes place faster than the absorption; or this may happen when both are in excess, or both more or less defective.

There are many known facts which accord with the idea of a preternatural exhalation, or pouring out of the serous liquid; and in order to appreciate them, it will be necessary to bear in mind some further physiological truths. Reference has already been made to the perpetual separation of watery fluid from all the surfaces of the body; the external, and those which communicate with the air, as well as the inner faces of the closed cavities. The fluids that exhale from the former class of surfaces, are for the most part excretions. They are thrown out of the system, and with respect to these, something more has been ascertained. It is observable that when the escape of aqueous fluid from one such external surface is checked, exhalation becomes more copious from some other excreting surface or organ. There seem to be special sympathies of this kind established between certain parts. It is probable that, so long as other circumstances remain the same, the aggregate amount of water thus expelled from the system cannot vary much in either direction, without detriment to the individual. But we are sure that the quantity furnished by each secreting surface, may vary and oscillate within certain limits consistent with health: provided, the defect or excess be compensated by an increase or diminution of the ordinary expenditure of watery liquid through some other channel. Sound health admits and requires this shifting and counterpoise of work between the organs destined to remove aqueous fluid from the body. The reciprocal but inverse accommodation of the function that subsists between the skin and kidneys, affords the strongest and most familiar example. In the warm weather of Summer, when the perspiration is abundant, the urine is proportionally concentrated and scanty. On the other hand, during Winter, when the cutaneous transpiration is checked by the operation of external cold, the flow of dilute matter from the kidneys is strikingly augmented. All this is known to be compatible with the maintenance of the most perfect health. But suppose the exhalation from one of these surfaces to cease, or to be diminished without a correspond-

ing increase of function in the related organ, or any organ communicating with the exterior, then Dropsy, in some form or degree, is very apt to arise. The aqueous liquid thus detained in the blood vessels, seeks, and at length finds, some unnatural and inward vent; and is poured forth into the cellular tissue, or into the cavities bounded by the serous membranes.

If water be injected in some quantity, into the blood vessels of living animals, they soon perish; generally by coma, or by suffocation; on examination the lungs are found to be charged with serous liquid, or water is discovered in the cellular tissue of some other parts, or in the shut serous membranes. If, however, the animal be bled, and then a quantity of water equal to the blood abstracted, be injected, the injection is followed by no serious consequences. Hence the importance of the sweating process which we shall recommend in the treatment.

It has been ascertained that animals (dogs, cats and rabbits) survive the extirpation of the kidneys for a space of time varying between ten hours and nine days. Very copious liquid evacuations from the intestines, vomiting, and fever precede their death. Clear serum is found in the cavities of the brain, the bronchi are full of mucous, the intestines of liquid fæces, and the blood is more than naturally aqueous. So in the disease called ischuria renalis, (suppression of urine) death by coma ensues; and the web of the pia mater or the cerebral ventricles, are often found full of water. In cholera there is suppression of urine for as long a space, but the brain is unaffected, for the system is drained of its water by the profuse discharges from the stomach and bowels. On the other hand, in diabetes the skin is permanently dry; the kidneys pour forth their altered secretion with a fatal prodigality.

The several classes of facts which have now been briefly brought into view, throw a strong light upon a confessedly obscure part of pathology. It appears that in various circumstances, the blood vessels may receive a considerable and unwonted accession of watery fluid; and that they are very prone to get rid of the redundance. When they empty themselves through some free surface, their preternatural distention is relieved by a flux; if, on the other hand, the surface be that of a shut sack, in discharging their superfluity they cause a Dropsy. Why sometimes *one* organ and sometimes *another*, is selected as the channel by which the superabundant water shall be thrown out of the vessels, may be owing to a debilitated state of the affected organ, or it may be that the primary lesion was in the dropsical part, for we often find it dif-

ficult to determine which is to be considered the antecedent and which the consequent. For not only is it true that when the blood vessels become overloaded with serous fluid, they readily deposit a part of it; but it is also true, that when they contain less blood than is natural, they are equally ready to replenish themselves by absorbing fluids from any source to which they can find access. In the case of an individual who was cured of his hydrocele, upon the occurrence of profuse watery discharges from the stomach and bowels, it seems clear that the expenditure of serous liquid from one part, led to its absorption into the blood from another. When anasarca suddenly leaves the extremities, or ascites the abdomen, and fatal coma follows, it appears probable that the absorption is the first of the changes, and the effusion the second; and had this effusion been determined to the mucus membrane of the intestines, to the skin, or the kidneys, it would have brought relief and safety to the patient, instead of causing death.

Among the most prominent causes of this disease, we may enumerate inflammation—mechanical obstruction to the free return of blood to the heart—excessive hemorrhages, disease and inactivity of the kidneys—repelled cutaneous eruptions, chronic diarrhœa, mercurial excitement. We may also mention pregnancy—bleeding is especially conducive to this complaint, so says Dr. Eberle.

The veins have been found to imbibe the serous fluid exhaled from the surfaces of serous membranes into the meshes of the cellular tissue, as well as poisonous and other substances that are soluble and dissolved in that fluid.

The experiments of Magendie, Fodere and others are quite conclusive to this point. It has been proved that many fluids may pass into and out of the veins, through their parietes, independently of any vital process, and by mere physical imbibition and transudation; so that when the veins are distended to a certain point with watery fluid, the introduction of more of the same fluid through their coats, is impeded or prevented; and when the distension is still greater, the aqueous part of the blood may even pass in the other direction out of the vessel. Dr. R. Lower applied ligatures to the jugular veins of dogs also to the vena cava and in both cases he found on post mortem examination, that large quantities of fluid precisely similar to the fluid of ascites, was found in the serous membranes. It is in this way that the pressure of an enlarged womb will induce Dropsy of the lower extremities. This form of disease may also arise from debility. In such cases the pa-

tients are extremely pale, with a very weak pulse and extreme debility of the whole frame. In these cases, too, the more they are weakened, the worse they become, the more does the Dropsy increase.

With regard to the fluid of these various Dropsies in the chest, in the peritoneum and in the head; it is sometimes perfectly clear, but more frequently it is at least turbid, not transparent, though it is translucent, sometimes it is bloody. The fluid which forms the swelling in anasara is perfectly clear, as is proved by the operation of acupuncture. In the case of chronic Dropsy within the head, the collection of fluid is almost like rock water. It contains the least possible quantity of animal matter and salts. In fact, the fluid in chronic hydrocephalus comes nearest to pure water, of any fluid that is morbidly collected in the body.

The swelling is most considerable when gravity directs the fluid in the greatest quantity; so that any part which is dependent becomes much more swollen in consequence; and we may regulate the swelling by regulating the posture of the parts. But sometimes the swelling will shift independently of any particular position. Where a person is lying straight in bed, one day one arm will be swollen, and the next day the other. Sometimes it will shift to the leg, and then return to the arm. This is a remarkable circumstance, but one that often occurs without any connexion with posture.

In forming a prognosis, we can only observe the degree of disturbance on the one hand, and the strength of the patient on the other. As this disease depends so often on organic disease, our prognosis will depend in a great number of cases upon the evidence there is of organic affection. We have only carefully to note, in giving a prognosis, whether, although the dropsy improves, some other symptoms continue to get worse. Dropsy will sometimes diminish rather suddenly; and the patient, so far from getting better, will die within a very short time. Sometimes ascites will nearly disappear or greatly improve at least; and œdema of the legs and the whole body diminish very considerably and yet the patient will speedily die; perhaps with apoplexy, or an effusion into the chest. We must not be satisfied with the disappearance of any of the symptoms of Dropsy, but carefully observe whether there are not still sufficient symptoms of mischief within, to make us fear the result of the case.

Having now given a sketch of the general characteristics of

Dropsy, we proceed, next to speak of some varieties or forms of this complaint.

We have observed that dropsy may exist wherever there is a serous tissue, but it is sufficiently minute for us to describe but four different species, viz: Ascites, or, abdominal Dropsy; Hydrothorax, or Dropsy of the chest; Anasarca, or, Dropsy of the cellular tissue, and Hydrocephalus, or Dropsy of the brain.

1st. Ascites.—In this form of Dropsy, we find the water extended over every part of the abdomen, and diffused among all the viscera and only circumscribed by the peritoneum. There are cases, however, where the water is included in different cists, or in one of the ovaries; in this case the tumor is not so uniform and the fluctuation not so distinct as in peritoneal dropsy, at least while the disease has not made great progress.

It is an observation made by Sir Astley Cooper, that one of the principle differences between Ascites and Ovarian dropsy, is that the latter is quite a local disease like hydrocele.

The difference in the consistence of the fluid will sometimes render fluctuation more or less difficult of detection; and also, when the water is contained in the different cists, it is frequently thick and gelatinous; but when it is uniformly diffused all over the cavity of the peritoneum, it is generally thinner and even quite limpid. Sometimes quite a number of hydatids are found floating in the fluids.

Diagnosis.—In general, this disease is attended with great uneasiness from all kinds of pressure on the abdomen; a gradual swelling of this part of the body, not inclining more to one side than the other. A fluctuation, when the hand is laid on one side of the tumor, and gentle taps on the other, considerable difficulty in breathing, caused by the collection of fluid interrupting the action of the diaphragm, and obliging the patient to lie with his chest very much raised, and constant thirst. Sir A. Cooper says the liver and spleen are very often enlarged and frequently cause this disease, hence it is well to look to these organs. The skin is dry and parched and the urine is scanty, thick and high-colored. The pulse is variable, being sometimes quick and other times slower than natural. Sometimes we have fever and at other times it is absent. Most frequently we have anasarca and perhaps hydrothorax complicated with Ascites. The bowels are commonly inactive, but easily moved by laxatives.

2d. Hydrothorax—Diagnosis.—In this form of Dropsy, there is a sense of oppression and tightness at the lower part of the ster-

num, with slight difficulty of breathing on lying down, or making any exertion, the dyspnœa and sense of suffocation are greatly increased. Starting in the sleep is very common: the pulse is irregular and very hard, the thirst urgent, urine scanty, high colored and sedamentous—the feet swell, the countenance is expressive of anxiety and alarm, and often of a mixed and pallid aspect.—There is generally a dry and short cough, especially when the patient lies down, or exercises. The extremities are often cold and more or less benumbed. The water often accumulates in considerable quantities before much inconvenience is experienced.—There is some difficulty in detecting this, and perhaps auscultation will be the best means of detecting it—there will be a dull sound on percussion. Occasionally the face swells and pits on pressure, especially in the morning; there will be debility and loss of flesh. As the disease progresses, the patient can seldom remain in a recumbent posture for any time, and the head and trunk must be supported almost erect. Convulsive efforts of the muscles subservient to respiration resembling an attack of spasmodic asthma, with violent palpitations of the heart, generally accompany the paroxysms, which are also frequently excited by the most trifling voluntary motion, or by a fit of coughing. The face and extremities are now cold, the pulse, with few exceptions, is feeble, irregular, and intermits in a degree seldom experienced in other disorders, and a pain or sensation of numbness frequently extends itself from the heart towards the arm or shoulder. The lips and cheeks are livid, and the countenance pale with a cold clammy sweat upon the upper parts of the body. Drowsiness, common delirium, occasioned by the difficult transmission of the blood, through the lungs, with want of sleep, frequently attend the latter periods of hydrothorax. There is commonly greater difficulty in lying on one side than on the other; this depends on the side, diffusion and quantity of the water; if confined entirely to one side, the patient can only lie on that.

The palpitation of the heart and irregularity of the pulse, may either precede, immediately attend or succeed the watery effusion, and it is of some consequence to ascertain the time of their appearance. If they precede the symptoms of serous accumulation, especially in old age, or after acute inflammation of the chest, it may be inferred they arise from one or other of the organic affections of, or near the heart; but if they commence about the same time with, or soon succeed these symptoms, it may reasonably be concluded they are owing to the pressure of the water on the surface of the heart and lungs.

It is sometimes difficult to distinguish this affection from angina pectoris, asthma, organic affections of the heart, aneurisms, etc.—It is well, therefore, to point out some signs of discrimination. In Dropsy of the Chest, we always have palpitations of the heart, more or less anasarca or dropsical swellings in other parts of the body, there is a tightness and sense of fulness across the chest, pain at the lower extremity of the sternum, difficulty of lying in a recumbent position, with a sense of suffocation, the urine diminished and high colored, a sensation of water perceived by the patient on moving the body in certain directions as if the heart were moving in a fluid.

3d. Anasarca—Diagnosis.—This is the Dropsy of the cellular membrane, and usually commences in the lower extremities, and first shows itself with a swelling of the feet and ankles towards evening, which by degrees ascends, till it occupies the whole body. The swelling is soft and inelastic, retaining for a time the pressure of the finger, the color of the skin is paler than usual, and, in the more advanced stages of the disorder, now and then exhibits more or less of a livid hue. When the effusion has become very general, the cellular membrane of the lungs partakes of the affection, the breathing becomes difficult and is accompanied by frequent coughing and the expectoration of a watery fluid. The urine is scanty and high colored. There is an insatiable thirst, dryness of the skin and costiveness; the countenance becomes sallow, and there is sluggishness and inactivity of the whole system. The distension of the lower extremities is sometimes so great as to cause the water to ooze through the pores or to burst open the cuticle.

The ordinary and most unequivocal sign, by which effusion into the cellular tissue is detected, is the pitting from firm pressure with the fingers. Anasarcous effusion commonly commences in the feet and legs, and thence rises up over the body, with more or less rapidity. This, of all the forms of hydropic disease, is the most frequently connected with a sluggish and languid state of the system; and it is this form of the disease especially, which is apt to supervene on excessive losses of blood, and other exhausting or debilitating causes. The skin is exsanguinous, and of a peculiar sallow or pallid cast; and the patient frequently manifests a great disposition to drowsiness, with a depressed or sluggish state of the intellect. Anasarca is often attended with some degree of abdominal effusion; and the latter, when it forms the primary affection, is rarely wholly free from anasarca. When anasarca arises from general causes, however, it is rarely connected with ascites.

In nearly all instances in which these two forms of Dropsy coexist, the effusions into the internal cavities precede those into the cellular membrane. Local anasarca may be produced by whatever impedes the free return of the blood by the veins.—Hence, the gravid uterus, tight bandages, and the pressure of indurated glands in the groins, often given rise to œdema of the feet and legs, by compressing in some degree the iliac veins.—Mere debility, too, especially when aided by a long continued erect posture, will have the same effect; and hence the frequency of œdema during the debility of convalescence from fevers. In nearly all organic diseases of the heart, œdema ultimately occurs in the feet and legs—more particularly in cases attended with ossification of the valves. Anasarca, from suppressed perspiration in consequence of the influence of cold, generally comes on and proceeds to its acme rapidly.

In our pathological description and causes, we were sufficiently explicit on this form of Dropsy; we now proceed to the

4th. Hydrocephalus.—This is sometimes a congenital affection. When not of this character it is frequently produced by exhaustion from disease, a feeble constitution, tumors in the substance of the brain or cerebellum. Tubercles may press upon the large veins and thus induce effusion generally near the base of the brain. Children of a scrofulous diathesis are predisposed to this disease. Blows, falls, and injuries of the head, intense, and long continued mental application, intemperance, dentition, intestinal irritation, whooping cough, diarrhœa, cholera infantum, active purging and bleeding, are among the most common causes.

Diagnosis.—Among the most common symptoms we have the senses of smell and taste affected, dullness and stupor are quite general, yet there are exceptions to this, and the opposite state pertains; the patient is more active and precocious. As the disease progresses, there will be an enlargement of the cranial bones, the sutures become open; there is dimness of vision. The digestion is impaired, and emaciation appears, yet we have very few cases where they become fat. The urine is scanty, and there is a great disposition to undue secretion of tears and saliva. Among the more violent symptoms we see vomiting, contraction of the flexor muscles, with more or less rigidity. Strabismus is a common attendant, grinding the teeth, epileptic convulsions, with partial paralysis. Among the premonitory symptoms there is fever, and in the infant we have the signs of dentition, foul stomach, and disordered bowels and flushed countenance; preternatural redness

of the eyes, contracted pupils; tossing the arms to the head, and occasional screaming or shrieking without any obvious cause. In the later stages of this disease, there is a constant moaning, and the child will vomit on being brought into an erect posture, or spasms and convulsions close the scene.

This disease sometimes assumes a chronic form, and there is a gradual enlargement from early infancy; the bones of the cranium give way, and the usual signs of compression do not show themselves. The head sometimes attains an enormous size. In the early stage of this disease in infants, there may be some difficulty in discriminating between hydrocephalus and apoplexy; the following, however, will mark the disease, as one of hydrocephalus—there will be more or less fever—hectic on the cheek, the eyelids half concealing the pupil—the eyes deprived of their vivacity by the filmy covering of the cornea—rolling the head on the pillow, throwing one arm round while the other is motionless by the side and palsied, drawing a long sigh, grinding the teeth, and at last, convulsions.

GENERAL TREATMENT.

In a disease so various in its origin and character, no one plan of treatment will be generally applicable. The remedies must necessarily be adapted to the particular circumstances of each case. Nevertheless, there are certain indications which should always be kept in view. These are, 1, to correct, as far as practicable, the particular pathological condition upon which the effusion may immediately depend; 2, to remove by absorption, or otherwise, the effused fluid, 3, to remedy any disease, whether cardiac, hepatic, or renal, which may act as the remote cause of the dropsy; and 4, to support the strength of the system. The same remedy will often answer more than one of these objects; and, where two or more remedies are required, they may very generally be given conjointly; so that, in detailing the treatment, the several indications cannot be exactly followed, without ceaseless repetition. They will, however, be borne in mind in the succeeding observations, as they always should be in practice.

When there is reason to believe that the effusion is the result of an inflammatory or highly irritated condition of the exhaling tiseue, and the general symptoms are those of active febrile excitement, or, even in the absenne of fever, should the pulse be full and strong, relaxants, stimulants, diuretics, and diaphoretics may be employed with advantage.

When, instead of irritation of the secreting tissues, we have relaxation or debility, with an impoverished condition of the blood, perhaps a scarcely less frequent pathological condition than the former, a wholly different treatment is required. The indication now is to improve the condition of the blood and give tone and increased contraction to the tissues. For this purpose our best tonic treatment should be employed.

The pathological condition which consists in passive venous congestion, may be complicated with one or the other of the above conditions, or may present no symptom of either, and so far as the system is concerned, must be treated accordingly. When there is no evidence of excitement, and none of debility or anæmia, we may leave the general state of health out of the question, and address our remedies to the removal of the cause of congestion, and the promotion of absorption. In every case, we should endeavor to ascertain whether any obstruction to the circulation exists in any portion of the system and, if discovered, to remove it.

Conjointly with attention to the general condition of the system, whereby we may check the disposition to excessive exhalation, we should endeavor to fulfil the second indication, that namely, of removing the effused liquid. This is done most effectually by promoting the secretions. We thus diminish the amount of circulating fluid, and proportionably favor absorption At the same time, the tendency to exhalation is incidentally diminished; and, if inflammatory excitement of the tissues exists, it is relieved by the means above recommended for that purpose.

Special Treatment—Diuretics.—The symptoms strongly invite attention to the secretory function of the kidneys, as the one which especially demands stimulation. The urine is almost always scanty; and the progress of the effusion not unfrequently bears a close and direct relation to its diminution. To increase the action of the kidneys would, therefore, seem to afford a probable chance of relieving the disease; and experience has abundantly confirmed the deduction. No remedies, upon the whole, prove more effective in the cure of dropsy than diuretics. When they can be brought to act freely, the disease is almost always moderated, if not removed.

The diuretic treatment should be accompanied with free stimulation. The following formula includes our best diuretics, and has often cured Dropsy without other treatment:

Horseradish Root,	1-2 pound.
Parsley Root,	1-2 "
Virginia Snakeroot,	2 oz.
White Oak Bark,	1-2 pound.
Iron Rust,	1-2 oz.

Mix. Add 2 gals. good cider. Digest well and strain off.—Dose 1-2 wineglass three times per day.

Another.

Mustard Seed, Horseradish, Lignum Vitæ, Indian-hemp,	Equal parts.
Iron Rust one-eight part.	

Mix, digest in cider—dose, wineglass full three times per day, before eating.

The bi-tartrate of potassa (*cream of tartar*) is an excellent diuretic. To one pint of water, add two ounces of the salt in a bottle. Before administering it, shake the bottle thoroughly, and drink immediately before the subsidence of the cream of tartar. A wineglass full, three times a day may be sufficient, though the quantity may vary greatly with circumstances. The object is to produce the freest diuresis, without catharsis, or particularly without debilitating catharsis. Should dyspeptic symptoms supervene, they must be counteracted by three grains of *Leptandrin* added to one grain of *Podophyllin*, twice a day.

Cathartics.—Whilst the general strength of the patient will permit their use, they may be safely and advantageously employed, but great caution is necessary. In the use of cathartics, those of a *hydrogogue* character should be selected. Our most active hydrogogues are the *blue flag*, (Iris *versicalor*,) *mandrake*, (Podophyllum *peltatum*,) and the *bitter root*, (Apocynum *androsemifolium*.) They may be administered separately or in combination.

The following formula will, in most instances, be found the best:

R.—Irisin,	7 grains.
Padophyllin,	9 "
Apocynin,	8 "

Mix. Pill, with extract Dandelion. Dose, two pills, night and morning.

Diaphoretics.—The best possible diaphoretic is a *vapor bath*. This may be employed daily, or more or less frequently, as the practitioner must determine from symptoms, and the nature of the case. It may alternate with other diaphoretics.

Next to the vapor bath, as a diaphoretic, is Lobelia. It may be employed even to emesis, with advantage. The Aselipias *tuberosa* (*pleurisy root*) is an excellent diaphoretic. The Eupatorium *perfoliatum*, (*boneset*,) is a mild and agreeable diaphoretic.—In most instances, however, the vapor bath and Lobelia will be sufficient. A good mode of administering the latter is in pills of three grains each, made of the hydro-alcoholic extract of Lobelia. Dose, from one to three pills hourly. The dose, however, must vary according to circumstances. It may be adapted to the freest diaphoresis short of emesis. Friction, to the surface, with a coarse towel, may follow the vapor bath. Emetics, and ordinary *courses of medicine*, will usually have a happy effect. Any of the following articles may be employed separately, or in combination: Sumach, prince's pine, parsley, asparagus, horseradish, the juice of the onion, the inner bark of the pine, juniper berries, watermelon seeds, yellow parilla, burdock, golden-seal and agrimony.

Diet and Drink.—The food should be nutritious, and easy of digestion. Much diversity of opinion exists respecting the propriety of allowing drinks. The patient, however, should never be allowed to suffer with thirst. Cold diuretic drinks, and old cider, are the least objectionable.

It will be unnecessary to give specific treatment for the different kinds of Dropsy. The general indications to be fulfilled are nearly the same in all cases. These are to remove the effused fluid, to prevent its effusion, and to strengthen the system.

Should the treatment above recommended fail, after having been persisted in a satisfactory length of time, in the case of *ascites*, the operation of tapping (*paracentisis abdominis*) should be performed.

This operation consists in making an opening into the cavity of the peritoneum, for the purpose of discharging the dropsical fluid. The proper instrument is a trocar, with a canula through which the fluid can escape. This is a very simple operation and can be performed readily by any physician. Let the patient be placed in a chair with the abdomen covered by a bandage alone, sufficiently wide to extend from the mammæ to the hips; let it be long enough to go twice round; let the ends be split in three or four places. About two or three inches below the umbilicus, in the linea alba, you will mark a place in the bandage and cut a slit, through which you will penetrate with a trocar and canula, passing through the integuments, tendons and peritoneum. The trocar being withdrawn, the water instantaneously flows through

the canula, and in proportion as it flows, let the assistants, placed on each side of the patient, tighten the bandage by pulling at its ends. This serves the purpose of keeping up the general support of the abdomen and prevents the patient from fainting. If there is a very large quantity of fluid, it must not all be drawn off at once. In one case that came under our observation, the physician was four days in gradually drawing off the fluid, and kept the patient all the while under good constitutional treatment, and effected a cure, after he had been previously tapped five or six times. In some cases there will be more or less obstruction from adipose matter or cellular substance; when this is the case, a stilet or something must be used to free the passage.

The trocar should be introduced in a steady, firm manner, never in an incautious or sudden way, lest the parts contained in the peritoneum should be rashly wounded. For the same reason, immediately the point of the trocar has entered the abdomen, a thing always known at once by the sudden cessation of resistance to its passing inwards, it should be introduced no further. Now, withdraw the trocar and push the canula in a little further. The fluid now gushes out, and as it escapes, the bandage is to be tightened. All the water having been evacuated, a roller bandage is to be immediately applied, with a small piece of lint and plaster over the wound.

Many cases recover radically with our tonic and stimulating treatment, after tapping, that cannot be cured by the common treatment.

When the water is viscid, the only thing we can do is to introduce a large trocar, if doing so should promise to facilitate the evacuation; so when hydatids obstruct the canula, a large instrument might allow them to escape.

In encysted dropsies, we can only let the water out of those cavities which we can safely puncture. If we are sure that there are cists, it is best to wait till they become one, as the partitions between them become absorbed.

When a dropsy of the ovary is very large, it admits of being tapped in the linea alba, but if possible, we should make the puncture where the swelling is most prominent, if delay for the cist to extend cannot be allowed, and caution being used to escape the epigastric artery.

As a general thing, without other remedial agents, tapping can only be considered as a palliative measure, as the water soon collects again, and the same operation is to be repeated.

OPTHALMIA—INFLAMMATION OF THE EYES.

Description and Causes.—The term Opthalmia, from a Greek word (Οφθαλμος) which means the *eye*, is used very extensively in medical works and includes a variety of affections, such as inflammation of the conjunctiva, (*conjunctivitis*,) of the sclerotic coat, (*sclerotitis*,) of the cornea, (*cornitis*,) of the choroid coat, (*choroiditis*,) of the retina, (*retinitis*,) of the tarsus oculi, etc., etc. But we shall not, for obvious reasons, give a separate chapter on the various and really arbitrary forms of this disease, for, as Lawrence has justly observed, these affections may, for the most part, be referred to a common origin, as they partake of a common nature, and are nearly all the offspring of inflammation, and the treatment of all is very nearly the same. We include, therefore, under the term *Opthalmia*, all forms of inflammatory affections, whether of the coats, membranes, lids or other parts of the eye, and in this chapter will describe the peculiar forms under separate heads, and the treatment for each.

Conjunctivitis.—This is simply a vascular excitement or inflammation of the conjunctiva or lining of the eye-lid and eye-ball. It generally affects both the eye-lids and the meibomian glands. It may be caused by irritants of all kinds; by exposure to winds, to intense light, heat or dust, it is sometimes epidemic and prevails extensively in hospitals, among children. So common is it, that there is a ward well filled in each of the hospitals in New York, with eye diseases. Cold is so common a cause of this affection, that a form is termed *catarrhal* Opthalmia. All persons predisposed to eye difficulties will be liable to this disease, wherever there is an interruption of the cutaneous transpiration.

Diagnosis.—Among the earliest symptoms of conjunctivitis, will be pain and heat, and a sensation as if there were grains of sand under the eye-lid.

It can scarcely be otherwise than interesting to mark the phenomena which occur in catarrhal opthalmia, when we know that in its cause and nature, it is the same with inflammation of a similar surface, in parts which we cannot so well inspect as we can the conjunctiva. This membrane lines the eyelids, and covers about a third part of the globe of the eye anteriorly. The inflammation, in catarrhal opthalmia, is confined to the junctiva and the meibomian follicles. Its leading symptoms are *redness* of the surface of the eye; *some pain* and uneasiness there; an increased *dis-*

charge from the affected membrane and the follicles, and a *sticking together* of the *eyelashes and lids.*

The redness is worthy of notice, both in respect to its tints, and to the arrangement of the vessels in which it appears. It is *superficial*, and of a *bright scarlet* color; and unusually *irregular*, or diffused in patches, some fasciculi of vessels being more distended than others. When, however, the inflammation is more intense, the whole surface, except that of the cornea, becomes of a scarlet red. The vessels of the conjunctiva, thus rendered visible by inflammation, anastomose continually with each other, and form a network, which can be slipped and dragged about over the subjacent surface by moving the eyelids with the finger. Frequently some of the meshes of this network are filled with little patches of extravasated blood; the eye is what is called blood-shot, or, to speak learnedly, there is *ecchymosis;* and sometimes all distinction of separate vessels is nearly lost. In the commencement of the complaint the redness is confined to that part of the conjunctiva which lines the lids; and it afterwards advances gradually, from the angle where it is reflected over the eyeball, towards the cornea.

The pain which attends catarrhal opthalmia is slight and trifling. At the outset there is generally some uneasiness when the eye is exposed to the light; but there is no intolerance of light when the disease is fairly developed. The patient complains rather of a sensation of stiffness and dryness, and feels as though there was some foreign substance in the eye, between the globe and the lids, especially when the eye is moved. So exact is the resemblance of this feeling, that you can with difficulty persuade the patient that there is nothing of that sort in his eye. No doubt this sensation is produced by the inqauality and roughness of the surface, consequent upon the irregular distension of the vessels of the inflamed membrane; irritating the organ mechanically, just as a piece of dust would irritate it.

Now in this respect, again there is a marked difference between conjunctivitis and sclerotitis. In the latter disease, the pain is much more severe, of a dull aching character, with a sense of tightness: the part inflamed is denser, and less yielding than the conjunctiva. The pain is attended also, frequently by throbbing, and is felt in the surrounding parts more severely perhaps than in the eye itself; in the brow, temples, and head. It is a very remarkable circumstance, that the pain is distinctly aggravated towards night; increasing in violence from the evening until after midnight, abating towards morning, and ceasing in a great mea-

sure during the day, to be again renewed in the evening. We are speaking now particularly of inflammation of the *sclerotica* produced by the same *causes* as give rise to catarrhal opthalmia; of what is generally called *rheumatic* opthalmia.

The increased discharge that takes place from the eye in catarrhal opthalmia is *not* a dischaage of *tears*. In the beginning of the complaint there is sometimes a slight degree of lachrymation.—But this soon ceases, and the mucous secretion from the surface of the membrane is augmented in quantity, and changed in quality. At first it is somewhat thin, but it soon becomes thicker, and it is often puriform; *i. e.*, opaque and yellow; sometimes it retains more exactly the characters of mucus, is transparent and viscid; so that the eye looks moist to a bystander, while to the patient it feels gummy. The puriform secretion is not, in general, in any great abundance. You may see it lying in the angle between the eye and the lower lid, by pulling them apart; or it makes itself visible at the corner of the eye, or between the eye-lashes along the edges of the lids, which it glues together at night. Sometimes, however, the discharge is more copious, so as to approximate to what is observed in the less severe forms of another disease we shall presently mention; viz., *purulent* opthalmia.

There is seldom much swelling of the conjunctiva. If there be any, it results from an effusion of serous fluid into the meshes of the areolar tissue that connects the membrane with the subjacent sclerotica; by which effusion the conjunctiva is partially raised and separated. This kind of effusion often goes to a very great extent in purulent opthalmia, or in violent inflammation of the external membranes, as we shall show you by and by.

You will not mistake this affection for the rheumatic opthalmia since the latter is accompanied with severe pain about the orbit of the eye and in the temples.

Treatment.—Among the best remedies which we have ever used, is a simple decoction of Lobelia leaves and the Golden seal, say:

Folia Lob. inf. (Lobelia,)	grs.	20
Hyd. canaden. (Golden Seal,)	"	30

Mix in cup of boiling water, and when cool use as a wash.—If the inflammation is great and the lids conjested, bathe often in cold water, or *tepid* water if more agreeable, especially if there is any catarrhal affection in the nose and weakness in the eyes.—A few drops of No. 6, in one ounce of pure water used as a wash will be found very good for most cases. So the pith of the

Sassafras in water is very soothing and will afford relief. The Alum curd and poultice of Slip. Elm at night, will sometimes be found excellent. An infusion of the Xanthoriza apiifolia or (*Parsley-leaved Yellow Root*) has been recommended.

This formula is highly spoken of by many:

Rubus strigosus (Raspberry,)	grs.	30
Hamamelis vir. (witch hazle,)	"	30

Put in cup of hot water, and wash the eyes often.

If the eyes remain weak the following wash will be found beneficial.

R.—Rubus stigosus, (Raspberry,)	grs.	30
Statice limomum (Marsh Rosemary,)	"	30
Nymphea odorata (Pond Lilly,)	"	20

Mix in cup of hot water, and add one teaspoonful of hot drops, wash night and morning.

Let the constitution be attended to by such general treatment as the symptoms may indicate. Dr. Abernethy says take care of the stomach.

There is another expedient that must be resorted to in these cases. When the eyelids are gummed together by the viscid discharge, much hurtful irritation is often produced by the hasty attempts which the patient makes to separate them. Now all this may be obviated by smearing their tarsal edges at bed-time with any mild ointment ; the spermaceti ointment; or a bit of lard.—There is no necessity, as we believe, in this form of disease, to use medicated or stimulating salves: the object is to prevent the mutual adhesion of the lids; and this is accomplished by simple grease.

The following formula is a valuable preparation for inflammation of the eyes:

R.—Tinct. capsi, (*Capsicum*,)	1-2	dram.
" Hydrastin, (*Golden Seal*)	3	"
" Myrrhæ, (*Gum Myrrh*,)	1	"
Oil Olive,	2	oz.

Shake well and apply with a camel's hair brush, three or four times daily.

PURULENT OPHTHALMIA.

Description and Causes.—This is another disease of the conjunctiva, differing from catarrhal ophthalmia in a degree, in the severity of its symptoms, in the danger which it implies to the sense of vision, and in its exciting causes. It takes its name from the profuse

discharge of pus, or of altered mucus which cannot be distinguished from pus, that pours from the inflamed surface. There are three remarkable varieties of purulent ophthalmia, called respectively—1, purulent ophthalmia of adults, or Egyptian ophthalmia; 2, gonorrhœal ophthalmia; and 3, purulent opthalmia of newly-born children.

The symptoms of the two first mentioned varieties, especially in their severer forms, are so much the same that it would involve us in mere repetition if we did not take them together. In truth it appears to us much the simpler and better mode to look upon purulent ophthalmia as one disease; and then to specify, as we go on, the differences by which its several forms are characterized: and not to separate it into three different diseases, and to give a special description of each.

Although purulent ophthalmia is inflammation of the very same part that is inflamed in catarrhal ophthalmia, from which it differs chiefly in degree, it is a hideous complaint, either to suffer or to treat: on account of the rapid progress it frequently makes, and its destructive tendency. The inflammation is *greatly* more intense; the surface becomes, in the worse cases, highly vascular throughout. A copious discharge of thick, yellow, puriform matter is speedily established; this flows out from between the swollen lids, and runs over the cheek which it often excoriates. At the same time considerable effusion takes place into the areolar tissue that connects the sclerotica and the conjunctiva. You are aware that the conjunctiva extends over the whole anterior face of the globe; adhering, however, so much more closely to the cornea than to the sclerotica, that we might doubt at first whether it did not stop at its margin. This close and firm adhesion over the cornea, and the looser attachment to the sclerotica, give rise to a very singular phenomenon. The conjunctiva is raised to some distance from the subjacent sclerotica by the effusion that takes place between them; and it projects around the cornea in the shape of a large thick ring, leaving the cornea buried as it were, in a pit; nay, sometimes, the swollen and prominent membrane will lap over, so as nearly to exclude the cornea from our sight. The same kind of effusion takes place, also, sometimes very rapidly, into the areolar tissue connecting the conjunctiva with the palpebræ, producing great external tumefaction, and a livid red appearance of the eyelids, which project forwards in large convex masses, and often prevent our seeing the globe of the eye at all; the upper lid especially becoming hard

and stiff, and completely overhanging the lower. This swelling from effusion into the subconjunctival tissue is of a pale, red, fleshy colour, sometimes marked here and there with patches of extravasated blood. The appearance is called *chemosis:* not echymosis, as the similarity of the sound has led some erroneously to suppose, but chemosis.

Diagnosis.—Purulent ophthalmia has been ascertained to be a common disease in hot climates: in India, Persia, and Egypt. It was brought into England, from the latter country, by the British troops in the beginning of the present century, after the well known contest which there took place between the French army and that under Sir Ralph Abercromby. In this way it got the name of the *Egyptian* ophthalmia. It naturally excited very great attention at that time, and it does not appear to have been accurately described before.

Dr. Mackenzie, indeed, has come to the conclusion, from what he has himself observed, that the discharge in *catarrhal* opthalmia especially when it is distinctly puriform, if conveyed from the eyes of the patient to those of others by the fingers, or by towels, and so forth, is capable of exciting inflammation of the conjunctiva, still more severe, more distinctly puriform, and more dangerous, than was the original opthalmia. And with respect to the disease which we have been treating of as purulent opthalmia, or Egyptian opthalmia, the author calls it *contagious* opthalmia; he holds that the inflammation of the conjunctiva, whether in the mild or more severe form, may and often does originate from common atmospheric influences; but then when so caused, it may be communicated from person to person, especially when it is attended with a puriform discharge.

And this is an opinion which, we think, is fully warranted by the facts which we are in possession of upon this subject. There is a strange reluctance, which we have never been able to account for, in some medical men, to admit of the operation of contagion, as a cause of disease. We will only remark, that there is nothing absurd, nor unlikely in the supposition, that diseases may first arise from some other source, and then become capable of spreading by contagion; and that in all cases, even when the contagious principle is most manifest, there seems to be something else required besides the presence of contagious matter; there must be a readiness to receive it, a susceptibility of its influence, on the part of the person exposed to it: a predisposition which is less common in

regard to some diseases than to others; but without which there is scarcely any complaint that can be so propagated.

At any rate we would impress upon you the expedience and propriety of *acting*, whatever your doubts or belief may be, *upon the safe side.* We are bound to proceed, in all questionable cases of this kind, upon the most unfavorable supposition. Very great discredit and loss of reputation have fallen upon practitioners who, having themselves no belief that a given complaint was contagious, have neglected those precautions which, under a contrary impression, they would have thought necessary. Perhaps they may have suffered unjustly; but you had better not commit yourselves, especially while you are young in years and in experience, by strong assertions of the non-contagiousness of any disease, the mode of propagation of which is at all questionable. And as for the disease that we are now concerned with, you will do well to act as though it were certainly contagious; whether you meet with it as a sporadic or as an epidemic complaint: whether it be severe in its symptoms, or mild. You should forbid the use of your patient's towels and washing vessels by other members of the family; you should avoid employing the same instruments or sponges to any sound eye, which you have been using for one that is affected with this complaint; and you should take care to wash your own hands, after touching a diseased eye, before you apply your fingers to another that is yet, in this respect, healthy.

Gonorrhœal Opthalmia.—We shall next describe purulent opthalmia as it is observed to occur in the adult, in connection with *gonorrhœa.* If you look at the mere phenomena presented by the inflamed eye, we find nothing to distinguish the gonorrhœal from the Egyptian opthalmia. Taking the average of a large number of cases, the gonorrhœal is the severer form of the two, and runs the more rapid course. It is said, also, that the inflammation usually commences on the lids in the Egyptian variety, while it attacks the whole conjunctiva at once in the gonorrhœal. But comparing individual instances, these mere differences, and slight differences too, in degree and situation, will not help our diagnosis.

But other circumstances may guide us. If a patient presents himself with severe purulent opthalmia, who has not been exposed to any of the known atmospheric causes of that disease, and at a time when purulent opthalmia is not prevailing as an epidemic, and if this patient have a clap, we may conclude that we have to deal with a case of *gonorrhœal* opthalmia; and this conclusion will be further strengthened if the disease affects one eye only.

For what, through the lack of any better nomenclature, we are constrained to call *Egyptian* opthalmia, seldom restricts itself to a single eye. Dr. Vetch says, "there is but one case in a thousand in which one eye only becomes affected." Walther observes that contagious opthalmia almost always appears in both eyes together, but not in the same degree; and Elbe (another German author) states that the contagious opthalmia has not confined itself to one eye in any instance.

Diagnosis.—It is always a matter of some interest to make out whether the disease has or has not any connection with gonorrhœa; even though we may gain nothing, in respect to the treatment, by the distinction.

Purulent opthalmia has been said to be connected with gonorrhœa in three several ways; 1st, by direct contact of the gonorrhœal discharge from the urethra with the conjuntiva; 2d, by metastasis of the inflammation from the urethra to the eye, without any such contact of matter; and 3d, independently of either of these ways; *i. e.*, purulent opthalmia has been supposed to occur in connection with clap, just as ulceration of the throat is apt to occur in venereal diseases.

Now the last two of these three modes of origin are more or less questionable; the first is certain.

Very odd speculative opinions are apt to possess themselves of the minds of medical as well as of other philosophers. Some who believe that the disease is communicable by direct contact of gonorrhœal matter to the eye, yet hold that it must come from the urethra of another person; that the Hudibrastic aphorism is true, "No man of himself doth catch." Dr. Vetch seems to have fallen into this opinion through the very common mistake of drawing positive conclusions from negative experiments. He had known a hospital assistant who, "with more faith than prudence," conveyed the matter of gonorrhœa from his urethra to his eye, with impunity. He states also a converse experiment: a soldier in a very advanced stage of Egyptian opthalmia, attempted to divert the disease from his eyes by applying some of the matter they were discharging to the orifice of his urethra: no effect followed this trial. But in another case the matter taken from the eye of a man, laboring under purulent opthalmia, was applied to the urethra of another man; and inflammation commenced there in thirty-six hours, and he had a very severe attack of gonorrhœa. Some persons, judging from such cases as this, and from the similarity of the discharge in the two diseases, "have gone the length of concluding

(according to Dr. Mackenzie) that gonorrhœa has been *originally* an inoculation of the urethra by the matter derived from the eye in the Egyptian opthalmia; whilst others are of opinion that this last disease is nothing else than the effect of an inoculation of the conjunctiva with matter from the urethra in gonorrhœa."

Numerous authentic cases have been recorded of gonorrhœal opthalmia produced by the application to the eye of gonorrhœal matter from another individual. Dr. Wardrop met with the following example: An old lady went into the dressing room of her son, who had gonorrhœa, and washed her face with a towel which he had recently been making use of. Purulent opthalmia quickly supervened, and destroyed the eye in a few days. Delpech mentions the instance of a young and healthy woman, who bathed her eyes with goulard water, by means of a sponge which had been used by a young man who had a clap: violent inflammation soon arose, and the sight of one eye was lost. Several cases of purulent opthalmia have been observed in laundresses, who had been employed in washing linen foul with the discharge of gonorrhœa.

Mr. Lawrence seems to be of opinion that purulent opthalmia is not a very frequent consequence of the application of the urethral discharge to the eye of the same person. "When we consider," he says, "how this matter is diffused over the linen of patients, both male and female, how often the fingers must be smeared with it, and how inattentive to cleanliness the lower classes are, we cannot help concluding that the gonorrhœal discharge must be *often* applied to the eyes of the same individual yet gonorrhœal opthalmia is comparatively rare." Dr. Mackenzie, on the other hand, thinks that the application of the matter to the eye is seldom made. "The instinctive closure of the eyelids," he observes, "when the finger approaches the eye, making it actually difficult for a person to touch his own conjunctiva, unless with one finger he draws down the lower lid, and intentionally applies another finger to the eye, will serve in some measure to explain the rarity of this kind of inoculation."

After what has already been said of purulent opthalmia in the adult, and of gonorrhœal opthalmia, it will not be necessary for us to take up very much time in speaking of *purulent opthalmia as it occurs in newly-born children.*

This is a *very common* disease: it is *very* serious when neglected: it is *very easily managed* when it is seen and treated in time. There are all reasons why you should make yourselves familiar with the complaint, and with the mode of curing it. You may perhaps never have occasion to treat a case of purulent opthalmia

in the adult; you are sure to be consulted about the purulent eye of infants, the *opthalmia neonatorum*.

The importance of the disorder is apt to be overlooked by mothers and nurses; they say the baby has a cold in the eye, which will go off; and they wash it perhaps, with a little of the mother's milk, or some such insignificant fluid. Meanwhile the eyelids swell, the mischief that is going on beneath them is concealed from sight, and when at last a medical man is consulted, he too often finds that one of the eyes has perished, or both: the cornea has sloughed or become opaque, or protrudes, and constitutes what is called staphyloma; prolapsus of the iris has taken place; or the coats of the organ have shrunk up.

The inflammation usually comes on about three days after the child is born, although it may commence later. It is confined, at first, to that part of the membrane which lines the lids. Their edges are observed to stick together when the child wakes; there is more intolerance of light, apparently, than is suffered in the analogous disease of adults. The little patients cannot indeed tell us their sensations by words, but they express them significantly enough by keeping their eyes shut, by knitting their small brows, and by turning their heads away from the light. At length the inflammation extends to the conjunctiva that covers the eyeball, the eyelids swell, sometimes enormously: and an astonishingly copious discharge of pus takes place. By the adhesion of the edges of the lids the puriform matter is sometimes pent up, causing them to protrude; and when they are separated it escapes in a profuse hot gush. The eyelids are sometimes averted during the cries and struggling of the little sufferer, and their mucous surface is then seen to be villous and shaggy, and of as bright a scarlet as you ever saw the injected mucous membrane of a fœtal stomach. At last those destructive consequences to the eye take place which we have already mentioned. The disease, however, may continue for eight or ten days without any affection of the transparent parts; and so long as these remain uninjured, the eye is safe, provided proper treatment be adopted.

This disease is probably much the most fertile source of blindness with which we are acquainted. It is believed to originate most commonly, if not always, in contagion. We might, perhaps, expect this from the analogy of the severe inflammation of the same parts in adults. And it is a matter of fact, that in a very large number of cases the mother has been affected at the time of her confinement, with some kind of vaginal discharge—leucorrhœa,

or gonorrhœa; and the eyes of the children are exposed to these morbid secretions, as they are brought into the world. The circumstance of the disease commencing so regularly on the third day, is greatly in favor of the supposition that it results from inoculation of the eyes by the unhealthy fluids of the mother. The discharge from the infant's eyes has been ascertained to be highly contagious. Dr. Mackenzie mentions a lamentable illustration of this fact, which fell under his observation at the Eye Infirmary, in Glasgow. An infant and its grandfather became his patients there at the same time; the latter having been inoculated from the former. Both were so severely affected that the infant had one eye left in a state of total, and the other of partial staphyloma: while in each eye of the old man, the greater part of the cornea remained opaque, and adherent to the iris.

STRUMOUS OPHTHALMIA.

Description and Causes.—There is but one more disease belonging to the conjunctiva, that we wish to bring before you, and then we have done with the morbid affections of this external membrane of the eye. It has received several names; sometimes it is called *pustular* ophthalmia, from the appearance of little pustules upon the surface of the organ. Dr. Mackenzie, who looks upon it as an eruptive disease, affecting the conjunctiva not so much as a *mucous membrane*, but rather as a continuation of the skin, names it *phlyctenular* ophthalmia. It has also acquired the title of *scrofulous* or *strumous ophthalmia*, from its continual occurrence in children of a scrofulous *habit*, and its very frequent association with scrofulous *disease* in other parts. It is a disorder of childhood, and it is so common a form of disorder, that of ten cases of inflammation of the eyes in young persons, nine will be of this kind. We shall call it *strumous* ophthalmia. It is a form of ophthalmia that differs in many striking points from those which we have been considering.

In the first place, it is intimately connected with the scrofulous constitution. Although a disease of children, it is not a disease of infants at the breast. It is a remarkable fact, showing the strong influence of unsuitable or insufficient nourishment in developing scrofulous disease, that when asked to prescribe for children having bad eyes, you will find, in nineteen cases out of twenty,

that you have to deal with purulent ophthalmia if the child be still at the breast, and with strumous ophthalmia if it has been weaned.

Diagnosis.—The leading symptoms of this disease are, *slight* redness; great intolerance of light; the formation of little prominences or pustules on the surface of the conjunctiva; and specks which are the result of these. The complaint sometimes occurs in one eye alone, oftener in both; but then one eye is generally worse than the other. Mere catarrhal ophthalmia is apt to degenerate into this affection in scrofulous children. After seeing two or three cases of strumous ophthalmia, you cannot fail to recognize it whenever you meet with it again.

The redness has this peculiarity, that it is slight and partial.—Sometimes it is altogether confined to that part of the membrane which lines the eyelids; generally a few vessels, collected into little bundles, are seen proceeding from some point of the circumference —more commonly from the angles of the eye than from any other point—towards the cornea; the vessels are evidently superficial, often prominent. These scattered bundles of vessels (sometimes there is but one) stop when they reach the cornea, or occasionally encroach a little upon it; and where they stop, the small elevations of the membrane may be observed, which are called pustules. This is the most common situation of these elevated points, just at the line of junction between the sclerotica and the cornea, or near the line. Sometimes, however, you may see one or two near the centre of the cornea. They are smaller in size when they appear on the cornea, than when they are situated near its edge.

These pimples may be absorbed, and leave behind them a temporary white spot; more frequently they break and form little ulcers. When these ulcers are beyond the cornea they are of less consequence; when they are situated upon it, they become sources of danger in two ways; they may penetrate the cornea, and let out the aqueous humor, and cause prolapsus iridis and various other mischief; or they may leave, after healing, a permanent white opaque speck, (called *leucoma*,) which, according to its size and its exact place, will interfere more or less with the patient's vision.

The intolerance of light is a very prominent symptom of this disease, and sometimes it really is the only symptom that manifests itself. It is curious that the inability to endure a bright light bears no regular or definite proportion to the intensity of the other symptoms. It is not that the eye is painful when protected from the light, but that the access of the ordinary light of day occasions extreme suffering; the eyes being spasmodically closed

and the orbicular muscle in such strong, and apparently involuntary action, as effectually to resist all attempts at opening them. Children that are affected with this disease, carry it legibly written in their physiognomy. Although you cannot tell what is the actual condition of the eye without examining it, you *can* tell, as soon as you look at the patient, what is the *nature* of the inflammation under which he is suffering. The child's brow is knit and contracted, while his alæ nasi and his upper lip are drawn upwards; those muscles of the face (they happen to be also muscles of expression) are instinctively put in action, which tend to exclude the light without shutting out the perception of external objects; producing a peculiar and distinctive grin. In the severer cases the child will skulk all day in dark corners; or if in bed, will lie upon his face, or under the clothes; and while the light is thus kept off, he does not appear to suffer. If brought towards a window, he holds his head down, and presses his hands or arms over his eyes. When you attempt to open his eye to examine it, a profuse discharge of scalding tears takes place; these pass partly into the nose, and excite fits of sneezing, and partly over the skin, which they sometimes inflame and excoriate; and then, frequently, pustules arise, and produce a discharge that crusts over the cheek and extends to the forehead and temples. This is called *crusta lactea*, and is very characteristic of the scrofulous habit; it occasionally spreads over the whole body.

You might suppose, from this extreme intolerance of light, that the retina was inflamed, or in danger. But it is not so. The affection of the retina is purely sympathetic, and need not of itself excite any fears about the vision. Towards dusk, indeed, in the twilight, the child can generally open his eyes, and then is quite as able to see as if he were well. Dr. Mackenzie endeavors to explain the connection of intolerance of light, spasmodic contraction of the lids, and lachrymation, even when there is but little visible redness, by the distribution of the lachrymal nerve; which, after supplying the lachrymal gland, goes to the conjunctiva, and to the orbicularis palpebrarum. We have the same set of symptoms when a bit of dirt gets into the eye, and fixes itself beneath the upper lid. When little or no redness exists, this extreme intolerance of light has been called *photophobia scrofulosa*.

With this strumous affection of the eye there are usually present other evidences also of scrofulous disease. Swelling and redness of the alæ nasi and upper lip; enlargement of the absorbent glands about the neck; eruptions upon the head; sore eyes; a

large and hard belly; disordered bowels; offensive breath; grinding of the teeth; and general debility. And the ophthalmia will alternate sometimes in severity with some of these other local scrofulous complaints; getting better as they get worse, and *vice versa*.

Treatment.—It is very evident that these forms of disease require constitutional treatment. The administration of alteratives is especially indicated; and while the remedies we have recommended for catarrhal ophthalmia are all to be used, and with some benefit, yet it is very evident that the *whole man* must be renovoted, and the same treatment instituted which we have recommended for gonorrhœa and scrofula, if we find the system to be contaminated with these affections and the ophthalmia, the result of either of these complaints. Condie recommends, in case of purulent ophthalmia in new born infants, a strong infusion of common tea, and when this cannot be introduced between the lids in any other manner, it may be carefully injected by means of a common syrnge. A solution of alum is also used, and any of our vegetable astringents which are not too stimulating for the eyes, such as the Nymphea odorat, (Pond Lily,) Trillium lat, (Beth root,) Ham. vir, (Witch Hazle;) a decoction of any one, or all of these, will be found useful. In slight cases of this disease among infants, it may be sufficient to wash the eyelids with warm milk and water, and a little fresh butter melted and applied with a camel's hair pencil.

In scrofulous children, Mackenzie remarks: "In most of the little patients to whom we have administered the sulphate of quinine, it has acted like a charm, abating commonly in a few days the excessive intolerance of light, and profuse epiphora, and hastens the cicatrization of ulcers of the cornea." Hot fomentations will often afford considerable relief; warm bread and water, or slippery elm poultices, during the night, are very soothing. We are fully convinced that our vegetable astringents are far better than the mineral poisons, so highly extolled by the old school authors. The nitrate of silver, the sulph. zinc and lead, should never be introduced into the delicate organ of sight.

It is not best to keep children in dark rooms; let the eyes be shaded by a green screen, and then let them be in the open air as much as the weather will permit.

Frequent and thorough courses of medicine must be relied on to subdue inflammation in its active stages in this distressing disease.

Frequent steamings will be serviceable, and if possible, the *local bath* should be adopted, medicated with some anodyne, emollient herbs. Warm soothing applications for a limited time will frequently be seen to produce a good effect.

In the very early, or more advanced stages, the vegetable astringent application, either lotion or poultices should not be neglected. Great care must be taken during the whole course of treatment to keep the eyes and parts connected, freed from the purulent discharges incident to the complaint. Composition, with a small quantity of lobelia, should be given at intervals, to keep up an action upon the surface.

The bowels should also be kept open by gentle laxatives.—Every thing must be avoided that might occasion irritation; therefore, due care should be directed to the quantity of light admitted to the room of the patient—reading, writing, and spirituous liquors, should be positively interdicted.

Mr. Lawrence, of the London Ophthalmic Infirmary, says a solution of alum water, locally, and magnesia, internally, was the almost universal treatment, and in forty-nine cases out of fifty among many hundred cases, he hardly recollects one where the eye suffered in any respect, if the cornea was clear when the infant was seen.

In Gonorrhœal Ophthalmia, the above treatment will be judicious in connection with such constitutional treatment as we recommend, for syphilis, and venereal complaints in general. So also will Strumous Ophthalmia be relieved by the above treatment, in conjunction with the agencies we mentioned in the Scrofula.—Dr. Glover says there appears to be little doubt of the success of an infusion or decoction of walnut leaves in scrofulous ophthalmia.

Syrup of Sarsaparilla, with a few grains of iodide of potassium (say eight to twenty) in a quart, will be a most valuable alterative in this disease.

IRITIS--INFLAMMATION OF THE IRIS.

Description and Causes.—We next call your attention to a part of the organ which is strictly internal—the iris: that thin curtain, with a circular aperture nearly in its centre, which hangs between the cornea and the crystalline lens, and is bathed on both sides by the aqueous humor. This little part, the office of which

is to regulate the quantity of light admitted to the retina, is of exceeding interest in respect to its morbid as well as its healthy conditions. It is frequently the seat of inflammation; and, small as it is, the inflammation seems to be entirely confined to it, or to the surface immediately before and behind it. No doubt, with inflammation of the iris, there is in many cases inflammation of the choroid and retina also, and of the sclerotica. But the inflammation seems to make the iris its point of departure, and there it works its most striking changes. We cannot see so well what is the actual condition of the choroid and retina; but we have this proof, either that they do not always participate in the disease, or that they often suffer less than the iris, viz: that when the natural pupil has been closed up by lymph, and a new or artificial one is formed, vision is frequently restored.

The little cavity across which the iris is vertically stretched, is lined by a smooth membrane, the source of the watery fluid always contained in the cavity. This membrane is analogous in its smoothness, in its forming a shut sac, and in the nature of its secretion, to the serous membranes met with in other parts of the body; it is analogous also to the serous membranes, in its behavior under inflammation. It *is*, in fact, the serous membrane of the eye. Now we have the means of inspecting a portion at least of several of the *mucous* surfaces of the body; but this serous cavity, constituting the anterior chambers of the eye, is the only *serous* cavity into which we have the privilege of looking, and of noting what is going on, when the membrane that forms its boundary is inflamed; and this it is that makes iritis, to us, one of the most interesting of all diseases. There is no single part of the body from which you can derive so much instruction concerning some of the minuter processes of inflammation, and concerning the power of certain medicines over those processes, as you may by watching a few examples of inflammation of the iris.

All the changes which occur in iritis depend upon the circumstance that the inflammation, like that of the serous membranes generally, is of the adhesive kind; *i. e.*, is attended with the effusion of coagulable lymph. By means of this lymph the form and the color of the part are changed; the size and figure of the pupil undergo alterations, or that aperture is completely closed up; the motions of the iris are limited, or entirely put an end to.

Diagnosis.—The symptoms which characterize inflammation of the iris are very obvious. To be perceived and understood, they require only to be looked at. Yet they long escaped notice

and even now are not always so carefully studied as they deserve to be.

What are these plain and obvious symptoms that were so long overlooked, or that were not understood when seen? They are the following: Redness of the sclerotica; a change in the color of the iris itself, and in its general appearance; irregularity of the pupil, produced by adhesion of the iris to the neighboring parts; immobility sometimes of the pupil from such adhesion; a visible deposition of coagulable lymph. All these changes are apparent and conspicuous. Scientific writers term them *objective* symptoms.—Then there are also the *subjective* symptoms, of which the patient alone is conscious—impaired sight, pain in the eye, and around it.

The *redness* is such as we formerly described as resulting from the vascularity of the sclerotic. The cornea is surrounded by a zone of fine straight converging pink lines, very different in appearance from the tortuous, anastomosing, scarlet blood-vessels of the inflamed conjunctiva. These hair-like converging lines stop abruptly at the edge, or just before they reach the edge of the cornea; they dip through the sclerotic, in fact, to go to the iris.—The vascular zone, therefore, is well defined in front, while it becomes fainter from before backwards, and is gradually shaded off; the posterior portion of the sclerotic being generally pale. As the disease advances, and in violent cases, the more superficial conjunctival vessels also sometimes enlarge, and mingle their tint of redness with that of the sclerotic, and more or less confuse or conceal it. Now this red zone or halo continues as long as the inflammation of the iris continues, and disappears when that ceases. It is an important symptom therefore.

The change in the *color of the iris* itself is also a remarkable circumstance. You know that what is called the color of the *eye* is simply the color of the *iris*. When the lymph begins to be effused into the texture of this colored part, it deepens, and at the same time alters its tint. A gray or blue eye is thus rendered yellowish or greenish. A dark eye presents a reddish tinge. The change is such as would be produced by a mixture of the color of the lymph with that which is natural to the iris. But besides a variation of color, the peculiar brilliancy of the surface is spoiled. It becomes dull and tarnished, as it were, and the fibrous arrangement, which is usually so evident, is confused or gone. The change commences at the inner or pupillary margin of the iris, and extends gradually towards the outer or ciliary edge. This is a symptom which you can scarcely overlook. It is rendered cer-

tain and unequivocal by comparing the sound eye with that which is inflamed.

The change of color which we have been describing is occasioned by the *effusion of lymph.* But the same event of inflammation leads to various other changes not less striking and more important, in so far as the functions of the organ are concerned.—The lymph becomes visible upon the surface of the iris. Its precise appearance varies considerably in different cases. Sometimes it presents little spots like freckles, or specks of rust; or a thin stratum of the same color is deposited. Sometimes it exhibits the appearance of drops, or (as they have improperly been called) tubercles, embossing the surface, and projecting from its pupillary edge. These are commonly of a yellowish or reddish-brown color, and they vary in magnitude from the size of a small pin's head to that of a large shot. There are seldom more than two or three of these masses. The lymph thus effused upon, or thrusting forward the surface, is confined almost always to that part of the iris which is nearest to the pupil, to the annulus minor; while its ciliary portion, or annulus major, is dull and clouded. Sometimes, when the inflammation is very violent, or the disease has been neglected, actual suppuration takes place. A reddish-yellow prominence arises from the surface of the iris, and at length breaks, and discharges matter which sinks down to the bottom of the anterior chamber, and presents the appearance that has been called *hypopyon.* All these changes become perceptible near the margin of the iris; its free edge which, in the natural state, is clear and sharp, becomes rounded and blunt; and at the same time the pupil often begins to lose its jet-black color.

Acute iritis is attended with pain and intolerance of light.—To the latter circumstance is probably owing the contraction of the pupil during the progress of the inflammation; and then the lymph *fixes* the pupil in that state of smallness and contraction.—There is pain in the eyeball itself, and in the parts about the eye, the brow and temple, most severe at night. There is much variety, however, in regard to the pain. Sometimes it is constant and severe, but still more aggravated in nocturnal paroxysms. Sometimes, even when the quantity of mischief that is visible is very great, scarcely any pain at all has been experienced.

Treatment.—Perhaps we cannot better begin this paragraph than by saying, our Reform Practitioners should not treat this disease as recommended by the various Allopathic authors, for every one of them recommends mercury, and this should never be admin-

istered either in this or any other complaint; neither should we use Belladonna or Hyoscyamus, or deplete by venesection; and this is all that is recommended by the great body of Old School authors.

As this disease of the iris is often dependent on some constitutional derangement, we shall find that a thorough emetic and vapor bath are necessary. The ordinary stimulating liniment, rubbed freely behind the ears and back of the neck, will prove efficacious. Let the bowels be kept free, but not too lax. Hot fomentations, in some cases, and cold applications in others, will be found to afford relief.

As this particular affection of the eye is often dependent on a Syphilitic or Rheumatic taint in the system, the cause must be attacked and removed by those remedies we advise for these complaints.

The bowels must be kept regular by mild laxatives, and should the disease run into the chronic form, you will find stimulating applications to be necessary, such as the Lobelia and Golden Seal.

Either a soft poultice composed of slippery elm, adding a portion of lobelia powder, or soft muslin cloths wet with cold water, may be laid on the diseased eye, if agreeable to the feelings of the patient.

The course of treatment above described is applicable to the *acute* form of inflammation of the iris, where the attack is sudden and severe. In chronic inflammation of the iris—the most common form of the disease, and often connected with a syphilitic taint of the system, chronic rheumatism and gouty affections—variations from the treatment above recommended will be required. For instance, instead of administering a course of medicine daily, once or twice a week will be sufficient, and in the intervals give tonics, as well as broken doses of lobelia.

When iritis is associated with *syphilis*, such remedies must be employed as are best adapted to clear the system of the syphilitic poison. Syphilitic iritis is never attended with abscess of the iris.

If inflammation of the iris occur in combination with rheumatism or gout, the treatment must be regulated to suit the character of the constitutional symptoms. Thus, if there be strong febrile symptoms, hot skin, and a strong, quick pulse, the case must be one of acute disease, and we must rely chiefly upon courses of medicine, and a continued repetition of broken doses of lobelia and stimulants. If associated with chronic rheumatism, or long-standing gouty affections, the case must be treated accordingly; the grand object al-

ways to be kept in view, being the improvement of the general health. Thus the same constitutional treatment that would cure a case of chronic rheumatism, would be adapted to the cure of rheumatic iritis. And again, where iritis is complicated with gout, the treatment that would be most successful in restoring the general health, would be the kind of treatment for curing disease of the eye, provided the iritis has been occasioned by the same cause as the gouty affection.

In chronic iritis, as well as in chronic rheumatism, and other forms of chronic disease, change of air, especially a residence near the sea, or travelling in a mountainous country, will often effect changes in the constitution that cannot be wrought by medical treatment alone.

RHEUMATIC OPHTHALMIA.

Description and Causes.—As there is sometimes a metastasis of rheumatism to the eye, we will describe this affection under the above head.

We know that the fibrous tissues throughout the body are frequently the seat of rheumatic inflammation. Some persons are more liable to rheumatism than others—are more readily affected by its external exciting causes, which are vicissitudes of temperature, and exposure to cold and wet. In such persons there seems to be a tendency to take on inflammatory action in all the structures of the same kind; and most particularly in the fibrous membranes, and tendons, that help to form the various joints; and as the sclerotica partakes of this fibrous texture, so it is apt to suffer, in its turn, from rheumatic inflammation. The connection of the movable eyeball with the head may be considered as a sort of *joint*. The local symptoms are not in general of a violent kind; and, as in other parts, the rheumatism seldom leads to any permanent alteration of structure; seldom, at least, when the ophthalmia is confined, as it often is, to the sclerotica alone. Perhaps the best way to put you in possession of the features that belong to rheumatic ophthalmia will be to describe an actual instance of it. We will take a well-marked example, related by Mr. Lawrence. He was sent for to see a gentleman who was suffering from what is commonly called rheumatic gout; swelling, some redness, and severe pain of one foot and knee, and one knee; ach-

ing of the back, and great constitutional excitement. He got well under the treatment adopted. After a short interval, upon Mr. Lawrence's calling to inquire how he was, he said there was something the matter with his eyes, and asked to have them examined. "I looked at them hastily," says Mr. Lawrence; "the room was dark, and the day dull, and I saw no appearance of disease. When I called again, after a few days, as the complaint was repeated, I examined more attentively. On bringing him towards the window, he obviously felt the light troublesome; he drew down the eyebrows, and half closed the lids, to avoid it.—The conjunctiva was natural, but the whole of the sclerotica had a livid red, and mottled appearance, which might have been called dull, or almost dirty, in comparison with the red color of common active inflammation. The sclerotic vessels were partially distended; the redness terminated short of the cornea, so that there was a distinct white rim round the latter. Vision was perfect; there was no pain so long as the eye remained at rest; but exertion of the organ, particularly under strong light, brought on uneasiness. The nature of this gentleman's occupation, and of his tastes, which were literary, prevented him from giving his eye the necessary repose; and the condition of the sclerotica just described lasted for three or four months;" so that Mr. Lawrence was apprehensive that some serious mischief would ensue to the organ. The affection remained confined, however, to its original seat, evincing only that obstinate character which belongs to disorders of such structures; and at last it disappeared completely, leaving the eyes with their organization and powers unimpaired.

Now when the rheumatic inflammation is not confined to the sclerotica, but creeps inward, as by their vascular connections it easily may, to the *iris* also, we name the disease according to the most important part that it occupies—arthritic *iritis*. On the other hand, when, with that affection of the sclerotica which we have been describing, there is combined a moderate degree of inflammation of the *conjunctiva*, this complex disorder receives a compound denomination; it is called *catarrho-rheumatic ophthalmia*.

Treatment.—This form of ophthalmia, like others we have described, demands those agents we advise for rheumatism.

The oil of turpentine, given in drachm doses, three times per day, has been found very successful—the bowels kept free, and some mucilaginous drinks freely used. The same remedies we have mentioned in iritis will be found indicated here; these, with

the general rheumatic treatment, will be found sufficient for all cases.

The following formulas will be found valuable in most cases of inflamed eyes:

Take of the fresh gathered bark of green osier, four ounces, of the root of yellow lilly, well cleansed, the same quantity, bruise them well together, and steep them moderately in two quarts of soft water, in a stone pot for three hours, stirring them occasionally; then strain off and add two ounces of fine loaf sugar, and an eighth of an ounce of saleratus, and half a pint of fourth proof Jamaica rum. A small piece of white vitriol half the size of a walnut, may also be pulverized and added; this we add knowing it to be good in case of sore eyes. This wash will cleanse the eye of all offensive matter, remove the itching or irritation, and restore it to a healthy condition. If too strong it may be reduced. To be used night and morning, or whenever the eye is irritable.

Sore eyes are generally accompanied with a torpid state of the bowels, which causes a pressure of blood and other fluids upon the ball of the eye. In such cases use injections of a tea of cayenne, sweetened with molasses. The feet may be bathed in hot water and liniment, to aid in equalizing the circulation.

Ulmus. ful, (Slip. Elm.)
Pinus can, (Hemlock,) } Equal quantities.
(Crackers.)

Lobelia Fol, (Green Lobelia,) mixed with milk, and made into poultice and applied every night, with the following wash during the day:

R.—Tril. lat. (Beth Root,) grs. 30.
Hydras. can, (Golden Seal,) " .30.

Mix with half cup of hot water—when cool bathe the eyes often.

For a cooling and soothing wash for inflamed eyes, the following is excellent:

Pith of Laurus sas, (Sassafras,) drachm 1. Put in one-half pint Rose Water, wash often during the acute stages of the inflammation.

AMAUROSIS—PALSY OF THE RETINA.

Description and Causes.—This affection of the eye is named from a Greek word, αμαυρος, which means *to darken or obscure;* it

consists in a diminution or total loss of sight, the result of a morbid state of the retina and optic nerve; the term *gutta serena* has also been applied by the German writers to this disease. Amaurosis may arise from any affection of the nervous structure of the eye, whether it be seated in the retina, optic nerve, or sensorium; or, indeed, it may be produced by vascular congestion, inflammation or organic change, or by sympathy with other organs. From these remarks, it will be seen that amaurosis comprehends all those imperfections of vision caused by any defect in the optic nerve or retina; and this defect may be functional or organic, and it may only be partial. It may affect one or both eyes, come on suddenly or by degrees; it is permanent or temporary, or periodic in some cases. Mr. Travers enumerates as among the causes of organic amaurosis, lesion, such as extravasation, inflammatory deposition; morbid growths within the eyeball, like dropsy, atrophy, and all such disorganizations as directly oppress or derange the texture of the retina; apoplexy, hydrocephalus tumors or abscesses of the brain, or upon the optic nerve, or its sheath and thickening absorption or ossification of it.

As causes of functional amaurosis, we have temporary determination, vascular congestion from various sources, paralysis also from various causes, so that we see there are very few cases of amaurosis that are not dependent upon some local or constitutional derangement or defect; hence it is more or less complicated.—Among the more general complications, some authors enumerate those which are purely nervous: bad health, contagion, miasmata, typhoid fever, asthma, internal and external hydrocephalus, organic defects in the abdominal visera, worms, chlorosis, consumption, old ulcers on the legs, organic disease of the brain, complaints arising from pregnancy, hemorrhage, etc. etc. Thus it will be seen we have a most extensive range of symptoms and causes. Quite a number of writers mention the use of bitter substances, such as chiccory, bitter malt liquors, quassia, etc., as among the common causes of amaurosis. All agree that opium, hyoscyamus, belladonna and lead, will produce it. Again, we find hysteria and hypochondriasis enumerated among the causes; so also liver, and other visceral derangements will induce it. Any thing which causes a determination of blood to the head will predispose to amaurosis, such as pregnancy, parturition, the suppression of some habitual discharge, carrying heavy burdens, and severe exercise of all kinds; so long use of the eyes on minute objects, or very bright ones.—Epilepsy and convulsions will produce it. There may be a metas-

tasis of gout or rheumatism, or a sudden cure of some cutaneous affections, or of an old ulcer, and this disease immediately follow. From so great a variety of causes, it will be evident that we must have a variety of symptoms, and such is the case.

Diagnosis.—One of the most common symptoms of a beginning amaurosis, is the appearance of flies or gnats seemingly flying before the eyes, (muscæ volitantes.) Not a very uncommon symptom is the patient's seeing every object indistinctly; sometimes tremulous, and in the dark there are blue or yellow flashes, or fiery balls seem to flash before the eyes when they are shut. The retina is quite sensitive to the light in the incipient stages of the disease, and all objects seem covered with a dense mist, and frequently every object seems double. Again, they appear of a different color, and distorted, bent, shortened and inverted; so in other cases we have short-sightedness, and then long-sightedness. We often have headache, and the subject feels as if there were before his eyes a thick net or gauze, which in a bright light appears quite black, but in the shade fiery and shining.—Another symptom is diminished sensibility to light, and a feeling as if some dust or dirt were upon the eyes, and the patient continually wipes them.

The pupil of an amaurotic eye frequently does not exhibit the clear shining blackness which is seen in a healthy eye. It is of a dull, glassy, horn-like blackness. In a few cases the color of the pupil has an inclination to green, and then again it is whitish and cloudy, some like incipient cataract. The inexperienced, however, must observe that this misty appearance is not situated close behind the pupil in the place of the crystalline lens, but more deeply in the eye. The sight is almost gone in amaurosis, but only a little obscure in cataract. In the former, if a light is presented to the eye, a halo or iris appears to encircle or emanate from the mist, and the flame seems to be split at a distance; while in the latter it appears involved in a generally diffused thin mist or white cloud, which increases with the distance of the light.—The pain in the head and eye, during the various stages, is variable; in some cases it is very severe, and shoots in every direction about the eyebrow; in others it is very slight, or without the least pain. According to some writers the pain affecting the forehead and temples is a precursory symptom of amaurosis, and it diminishes in proportion as the dimness of sight increases. When the amaurosis is perfect, it usually ceases altogether if the disease has its seat in the eyeball; but when the pain is severe, remits imper-

fectly, and is quickly rendered worse by exercise. It is usually connected with organic disease of the brain.

This disease is found to be hereditary, and one author mentions a family, or a woman of one of these families, down to the third generation, who became completely blind from amaurosis, on the cessation of the menses, while all the others who had had children were unaffected. In women of black eyes, the time when the menses stop is a dangerous period for this disease.

There is something very peculiar in the expression of countenance, and in the gait, of an amaurotic person, by attending to which alone, you may almost recognize the disease. He comes into a room with an air of uncertainty in his movements; the eyes are not directed towards the surrounding objects; the eyelids are wide open; to use a strange but common and intelligible phrase, the patient seems gazing upon vacancy—has an unmeaning stare; and there is a want of that harmony of movement and expression which results in a great measure from the information obtained by the exercise of vision. This seeming stare at nothing at all, is not observed in patients who are blind in consequence of opacity of the crystalline lens or its capsule, *i. e.*, in consequence of cataract. They, on the contrary, while they cannot see, still seem to look about them, as if they were conscious that the power of sight remained to the retina, although light was shut out from it.

When the amaurosis is incomplete, the motions of the iris are sluggish, and the pupil is larger than ordinary. When the blindness is total, the commonest condition of the eye is that of great dilatation of the pupil, with complete immobility of the iris. A mere ring of iris is all that is visible, and no change takes place in the diameter of the pupil, under the greatest variation of the light that falls upon it.

Treatment.—It is obvious that no particular rules, no rules, that is, which will fit all cases, can be laid down for the treatment of so multiform a complaint as amaurosis. When it manifestly results from disease of the brain, as when it accompanies hydrocephalus, or remains after a stroke of apoplexy, our attention must be directed to the disease from which it has sprung. When there is any reason to suppose that congestion or chronic inflammation of the internal tunics of the eye itself is concerned in the production of the amaurosis, we must adopt the measures that we have described, as the most likely to remove the congestion. When there is ground for suspecting that the blindness takes its rise in vascular exhaustion, or nervous debility, we must have recourse to

tonics ; bark, preparations of iron, nourishing diet, the cold bath, etc.

After all, you will find too many cases which will baffle your best-directed attempts, and in which you will be required and warranted to try other expedients. When what we may call rational measures have been expended in vain, you may have recourse to such as are empirical and tentative. There are various *stimulants* which have occasionally been found serviceable ; but most of them, we believe, fail much oftener than they succeed. Electricity is one of these ; it is applied by taking small sparks from the eyelids, and from the integuments, round the orbit. The object of this is to rouse the dormant energies of the passive nerve ; and it appears sometimes to do this for the retina, as well as for the nerves supplying voluntary muscles. Mr. Ware tells us that electricity is most beneficial in those cases in which amaurosis has succeeded a stroke of lightning. You must take great care not to employ this remedy when there is any inflammatory action at the bottom of the complaint ; it should seldom be tried, therefore, when the affection is recent.

Amaurosis, when completely formed, has been but rarely cured ; a cure is naturally in proportion to the variety and number of causes of the complaint. From what we have said, it will be perceived that our treatment must depend on removing the cause as speedily as possible, and as these causes are various, so must be the treatment. There have been cases of perfect cure by some accidental injury to the head. In treating this disease, the surgeon should act with great caution, and always bear in mind the constitution, sex and age of the patient ; also his employments and general mode of living, and the morbid appearances under which the disease originated and was developed.

Cold bathing has been in some cases very successful, especially when it has been caused by some suppressed evacuation. The depleting and mercurializing practice of Allopathy has produced ten fatal cases, to one that has been benefitted. The general treatment should be simple, such as will stimulate and strengthen all the powers, and induce every organ to perform its function.— Emetics of Lobelia have cured some stubborn cases. Our stimulating Liniment applied behind the ear and neck will do all the good, yea, more than any blisters so universally used by the Old School.

If amaurosis is caused by a metastasis of rheumatism or gout, the same treatment as is recommended for these complaints in

other organs, must be adopted. If caused from repelled cutaneous disease, diaphoretics and alteratives are indicated; and so on to the end, the same course will remove the symptoms which show themselves that would the primary affection.

Errhines have been advised, upon the notion that by irritating the branches of the fifth pair of nerves, an excitant influence may be exerted in the retina.

The following is a valuable formula for strengthening the eyes:

Take of golden seal one ounce, bayberry one ounce, lobelia leaves one ounce; mix, put them into a suitable vessel, and pour a quart of boiling water on them. After standing an hour pour off the liquid so as to leave the sediment, add one pint of best alcohol, filter through paper, and bottle for use.

DISEASES OF THE NERVOUS SYSTEM.

GENERAL OBSERVATIONS.

In reviewing the phenomena of nervous diseases, we find them presenting several varieties depending upon certain circumstances. In the first place, they vary according to the seat of the disease. We find that the signs and symptoms of affections of the cerebro-spinal system differ very considerably from those which characterize diseases of the sympathetic nerves. Again, if we take any part of the nervous system, and examine its diseases, we find that here also there is a source of variation connected with the peculiar part affected. Thus, if we take the cerebro-spinal system, we find that disease of one part of it differs most essentially in symptoms from disease of another: we may have enormous and fatal disease of the spine without the slightest injury of the intellectual powers, but we seldom have disease of the brain, particularly of the surface, without a more or less appreciable lesion of the phenomena of the mind. To follow up this point, suppose we take the diseases of the brain itself, as compared with each other we find that their symptoms vary according to the locality, so that, whether we look to physiology or pathology, we must consider the brain as consisting of several distinct parts, and not as an inseparable whole. It is admitted, by many writers of high authority, that there is a difference between the symptoms of disease affecting the periphery, and disease affecting the central parts of the brain; and there is reason to believe that we may be able, in many cases, to diagnosticate

affections not only of the centre and periphery of the cerebrum, but even of other parts of the organ.

The same variety occurs with respect to the effects of diseases of the nervous centres. In some instances we have, as the result of disease of the brain, a loss of muscular power, or of sensation, in different parts of the body—sometimes affecting the face, sometimes one side, or even both; and these paralyses may be single or variously combined. It appears, then, that the component parts of the nervous system, by being to a certain extent separate and distinct, furnish a very extensive source of variety in the phenomena of nervous affections.

Lastly, we have the varieties which depend upon the nature of the lesion. We generally observe an obvious difference between cases of nervous disease, accompanied by some *known change* in the injured part, and cases in which no such change can be demonstrated. Thus, for instance, we know the symptoms of apoplexy, and that, in the majority of cases, it is a disease connected with some perceptible change in the circulation of the brain—as excessive distension of its vessels, or an effusion of blood on its surface or into its substance. We also have some idea of the nature of inflammation of the brain; we know that its substance becomes at first red, then begins to soften, and finally is converted into a pulpy mass. Now, there are a number of symptoms which are so often and so constantly connected with peculiar organic changes, that the symptoms being known, we can make a tolerably correct guess of the nature of the alteration, or *vice versa*.

On the other hand, however, we have a large and important catalogue of nervous affections, in which the symptoms give but very unsatisfactory information as to the real nature of the disease, and to the elucidation of which the painful and long-continued investigations of the pathological anatomist have hitherto been directed in vain. Of the actual nature of a numerous, complex, and interesting class of diseases—the *neuroses*—we know nothing. All we can say of them is, that they are examples of lesions of function in various parts of the nervous system, presenting no trace of structural alteration *appreciable by our senses*. It is a startling fact, and one which must be a source of gloomy reflection to the pathologist, that many of the diseases of the nervous system, which present the most violent symptoms, are those in which there is the least perceptible organic alteration. Every man who has seen a case of hydrophobia, or tetanus, or mania, or epilepsy, has witnessed a train of extraordinary and horrible symptoms, infinitely

worse than those which are seen to accompany even great organic alterations of the brain.

Here, then, is a singular fact: that there is a part of the system presenting a series of diseases under this extraordinary law, that the most violent and frequently fatal symptoms are accompanied by the least perceptible organic alteration. Now, what is the nature of these neuroses? To give you a familiar illustration, let us take a case of tetanus or hydrophobia as an example. Here we have a train of symptoms exhibiting the most frightful irritation of the nervous system: and yet when we come after death to examine, with eager curiosity, the cause of all these appalling phenomena, what do we find?—nothing. There is no unequivocal, no constant, no prominent alteration of any part of the nervous system, to throw light upon the obscurity of our opinions, and enable us to fix the nature or locality of the disease. We lay aside the knife in despair, and bitter indeed is the consciousness of our ignorance.

Two opinions have been entertained by pathologists with respect to those singular affections: one, that they are examples of some peculiar modification of the nervous influence, *independent of any organic change*. In other words, the pathologists who entertain this opinion hold, that the principle of life may be altered in its phenomena, and admit of modifications, independent of any molecular change. The supporters of this doctrine reason thus:—In the phenomena of neuroses we have a train of extraordinary and violent symptoms unconnected with organic change. Now, it is quite unphilosophical to say that there is organic change when we cannot see or demonstrate it; and, on the other hand, it is not absurd to suppose that we may have lesions or peculiar modifications of the nervous principle, without any organic alteration.—The other opinion is, that in the neuroses there is some organic change, the nature of which cannot be ascertained, in consequence of our limited powers of detecting elementary changes. In whatever light we view this question it appears to be surrounded with difficulties. No one can deny that neuroses are very different from organic diseases of parts. If we compare them with that class which is most familiar to us—the inflammatory affections—we find a remarkable difference. In the first place, the neuroses may be brought on by causes not reckoned among those commonly capable of exciting inflammation. In the next place their invasion is sudden, and their progress rapid; they arrive at their *acme* in a very short period of time, and subside rapidly. These are charac-

ters which do not belong to the ordinary forms of organic disease. Again, we often observe the utmost intensity of nervous pain without the co-existence of swelling, redness, or heat of the part affected. Lastly, the most accurate and well conducted investigations of pathological anatomy have failed in demonstrating the slightest organic change in these cases—at least, where changes are found, these are *neither constant, competent, nor commensurate with symptoms;* so that, whether we compare the information we derive from symptoms, or the result of pathological anatomy, we find a great difference between neuroses and organic diseases. It may be said, that, though they are not inflammatory affections, they have some resemblance to them. This, however, is only a gratuitous supposition; for, even in the very worst cases, they present nothing analogous to the results of inflammation, and the brain and spinal cord are as free from perceptible organic change, in the majority of cases of fatal tetanus and hydrophobia, as they would be in nervous affections of a slight and transient character.

You may have already been convinced that it is difficult to form any clear or definite notion of the nature of neuroses; indeed, the only thing we can say of them is, what they are not. When we reflect on nervous phenomena, and consider how occult, how mysterious the properties of those organs which give rise to them are, we are struck with astonishment at the discrepancy between cause and effect. No medical man has ever witnessed a case of confirmed tetanus or hydrophobia without being oppressed with a conviction of the imperfect and limited state of our knowledge of nervous disease.

It may be very possible, that in these neuroses the change, though so slight as to escape our means of detection, does absolutely occur; and yet such is the nature of nervous phenomena, that we must admit that great and extraordinary effects are produced by very slight causes. Do we see anything like this in nature?—any remarkable alterations in properties depending upon apparently slight causes? We do—we see extraordinary changes taking place in the characters of various inorganic substances (to which we need not particularly allude,) and there is no reason why the same thing should not occur in organic structures. On considering the doctrine of Isomerism, we should be inclined to think that it throws some light on this obscure subject. In chemistry, it is a well-known though singular law, that the properties of two bodies may be essentially different at the same time that their respective component elements are, as far as our knowledge goes, identi-

cally the same: and the change, whatever it may be, appears to result, not from the abstraction or removal of any of the component atoms, but from their peculiar juxtaposition. Now, it being admitted in chemistry that many bodies having the same constitution possess different properties, and this difference being explained by the different position of their elements, it does not seem strange if the same thing should take place in the phenomena of organized beings; and, if this be the case, we have a key towards elucidating the nature of these neuroses, and can conceive how an analogous change—a difference in the arrangement of the molecules of the component parts or the nerves, or their centres—may produce new modifications of their properties without making any distinct change in their nature, or adding or abstracting a single organic molecule. We are much inclined to adopt the opinion of those who think that, in the neuroses, a peculiar organic change actually takes place, though we cannot demonstrate its existence, because, to reason on the phenomena of animal life, independently of organization, is to plunge blindly into hypothesis and retrace the errors of an antiquated and exploded school.

The chronic diseases of the nervous system may be divided into two classes—viz: 1. Those in which the sensorial or muscular functions are morbidly affected, either separately or conjointly; 2. Those in which the intellectual and moral powers are disordered.

The first of these classes comprehends a great variety of affections—characterized either by a *perversion*, or a *morbid activity*, or *abolition* of one or more of the *sensorial functions*; or by spasm, or convulsion, or paralysis, of a greater or less portion of the *muscular system*.

The examples of singularly *perverted* sensorial function are numerous. Reil mentions a case in which the whole surface of the body was insensible to heat or cold, and incapable by the touch of distinguishing hardness from softness in bodies. Dufour gives an account of a similar case. Sauvages relates the case of an individual who always heard two voices, one an octave higher than the other, when any one spoke to him. Individuals have lost the power of distinguishing colors; and some have been much harassed by various visual illusions.

Instances of very distressing morbid increase of sensorial power are frequently met with. The sense of hearing has become so exceedingly acute, that the weakest sounds gave rise to pain and uneasiness, and the same has been observed with regard to the

other sensorial powers. In some cases, nervous disorder manifests itself by excruciating pain in some part of the body, as in the various forms of neuralgia.

The sensorial functions may also be weakened or entirely *destroyed*, by affections seated in the nervous system. When such affections are local, one sense alone may be obliterated; but when the disorder implicates the whole of the sensorium commune—the brain—all the sensorial powers will be suspended. This general state of nervous oppression or inactivity is attended with manifest respiration and arterial action, and constitutes what is termed *coma;* a condition which must not be confounded with *syncope* or *asphyxia.* These latter affections are not accompanied by any perceptible respiratory and arterial actions, and although like coma, the immediate consequence of impeded cerebral function, yet they are manifestly dependent on different conditions of the encephalic circulation. The pathology in relation to this subject, however, will be illustrated hereafter.

When the nervous irritation passes upon the muscular system, it gives rise to irregular, spasmodic, or convulsive actions, either in one, or in several, or in the majority of the muscles of the body. These convulsive or spasmodic muscular contractions, are divided by authors into *tonic* and *atonic.* In the former the contractions are permanent, as in tetanus; in the latter they occur in quick alternation, with relaxations, as in hysteria and epilepsy. There exists, however, no essential difference between these varieties of convulsive muscular action. They indeed, often occur at the same time in the same individual, some muscles remaining in a state of firm contraction, whilst others are alternately relaxed and contracted. In general, however, convulsions of the *atonic* form are attended with less danger than those of the rigid or *tonic* spasmodic affections. The former are frequently the result of a mere temporary sympathetic irritation of the brain, from causes of a transitory character, or susceptible of being removed; whilst the latter usually depend on a more intimate affection of the nervous system, from causes over which we have little or no control. Convulsions, or general spasmodic affections of the voluntary muscles, must, therefore, be regarded as the external manifestations of certain morbid actions or conditions of the brain and nerves. The brain or spinal marrow, is the immediate source of the muscular irritation; and the violence, duration, character, and extent of the convulsive affection, depend on the nature of the cause, and the constitutional habit of the patient. In some instances, the cerebral

affection which gives rise to the convulsive muscular contractions, is so great as to produce a temporary suspension of consciousness, and of the sensorial functions. In others, as in tetanus and chorea, the mind and sensorial powers remain unaffected until the disease becomes inveterate.

Having made these general observations on the Nervous System, we now proceed to the various forms of disease with which this portion of the system is afflicted.

INFLAMMATION OF THE BRAIN AND ITS MEMBRANES.

Description and Causes.—It will arise, like any other inflammation from cold applied to the body, especially when the latter is overheated. It will occur also from simple heat; for if a person in a hot climate be exposed to the direct rays of the sun, without any covering on his head, (especially if he be lying down,) inflammation of the brain may be the consequence. This is called "insolation." Sometimes, instead of inflammation, apoplexy is induced; but this more frequently occurs when the patient is making a violent exertion at the same time.

Intoxication will produce inflammation of the brain. Spirituous or vinous liquors irritate the brain, or they would not intoxicate; and the irritation may amount to such a degree, that inflammation may occur. The same circumstance arises from mental irritation.

Mental irritation, whether it arises from rage or anxiety, causes a great excitement of the brain. Want of sleep, or long-continued watchfulness, will have the same effect. Long-continued excitement, of a less degree, may amount to the same thing as violent excitement for a short time. Excessive use of the brain cannot take place, without the want of sleep and anxiety. No person studies, without being anxious to *learn* what he studies; and his love of study induces him to sacrifice sleep.

Narcotics, which stimulate the brain, will induce this condition of that organ. It is very common, after large doses of opium, hyoscyamus, or stramonium, to find a throbbing in the vessels of the head. After a person has taken prussic acid, he may experience throbbing in the head, or throbbing of the throat, and more or less delirium.

Wounds, of all descriptions, are common causes of inflammation within the head. Contusions, concussions, penetrating

wounds, and mechanical injury of the head, may act in two ways —as *exciting* and as *predisposing* causes. We may have inflammation directly induced by them; or such morbid irritability excited, that any common cause, afterwards applied, may easily produce inflammation—so that when a person has had injury inflicted on the head, (whether it be fracture or any thing else,) it is sometimes very dangerous for him to drink either wine or beer, or spirituous liquors, for a very great length of time; or perhaps even to eat meat; for the slightest cause, in these circumstances, may give rise to inflammation. This disposition will occasionally last for years.

Phrenitis has sometimes arisen from the cessation of an eruption. It is said that cessation of itch has been followed by inflammation within the head.

Sometimes it has arisen from the removal of a tumor. The tumor has taken off a great deal of excitement. It has required a considerable quantity of blood to nourish it; and, the tumor being removed, there has been so much more irritation throughout the system, and the brain has consequently suffered. This has more frequently occurred, when the tumor has been situated on the head itself. This is exactly what we should suppose.

Analogous to the cessation of an eruption, are amenorrhœa, and costiveness. Women, every day—from the cessation of the menses, when they ought to menstruate—become the subjects of violent headache, giddiness, and symptoms of that description.—Now and then actual inflammation of the brain will take place. Costiveness frequently induces headache. If a person pass his usual time for having a motion, headache takes place; and it is said that inflammation of the brain has sometimes been the consequence of mere costiveness.

Inflammation of the eye, or the ear, or the nose, or the frontal sinuses, will sometimes spread to the brain. Phrenitis has frequently carried off patients who have had nothing more, at first, than inflammation of the parts we have just enumerated. Of course, inflammation will spread in the head, just as in other parts of the body. When the nose and the sinuses have been inflamed, in a great number of cases the bones have been found carious.

When the skull has become affected by venereal nodes, it is not uncommon for the "dura mater" to become inflamed, and the patient to die, with all the symptoms of phrenitis.

When the external parts of the head, the scalp, or the face, are inflamed, it is very common for phrenitis to occur. When ery-

sipelas of the face and head proves fatal, we believe, in the greater number of instances, it does so by inducing inflammation of the brain itself, or of its membranes.

Inflammation of the brain, however, certainly does occur sometimes, in the way of metastasis. When rheumatism ceases in the joints, or gout ceases in some situations, phrenitis occasionally occurs; and it sometimes takes place after the cessation of inflammation in the salivary glands; in the case of mumps, or (as it is sometimes called) "cynanche parotidea." Phrenitis sometimes occurs immediately on the cessation of this species of inflammation; but sometimes it occurs on the cessation of inflammation of the testicle; which itself occurs, in the first instance, after the cessation of inflammation in the salivary glands. Sometimes the testes are inflamed immediately. It is very common, after inflammation of the salivary glands, for the testes to become inflam[illegible]; and when that inflammation ceases, phrenitis sometimes occurs; but sometimes inflammation of the brain occurs immediately on the cessation of the mumps themselves.

Phrenitis, however, as we before stated, is by far the most frequently seen as an occurrence in fever; and some may choose in this case to consider it *idiopathic*—excited by the contagion of fever, or malaria, or remittent fever, or by excess, or vicissitudes of temperature. Some contend that fever itself, in many instances, consists of inflammation of the brain; and if they be correct, such phrenitis must be considered idiopathic. If, however, fever be a general affection of the system, then the phrenitis would be considered by those who hold that opinion as *symptomatic*. But these are mere differences of words.

Inflammation of the brain is predisposed too, by native congenial irritability of that organ. Some persons have extreme irritability of the brain. If such individuals be thrown into a passion, or be suddenly and violently excited, they are very liable to phrenitis. Habits of intoxication, injuries of the head, all organic diseases of the head, and especially tumors in or upon the brain, necessarily have the same effect. All these things give a tendency to inflammation of the brain; so that an exciting cause easily becomes efficient.

Diagnosis.—*Inflammation of the Arachnoid.*—It is probable that, of the three membranes of the brain, the arachnoid is most frequently inflamed; and we may have inflammation, not merely in the enveloping portion, but likewise in that which lines the ventricles. Either one portion or the other, or both, may be inflamed.

When this membrane becomes inflamed, it is opaque; and it also becomes thickened; both which are common effects of inflammation.

There is generally a certain quantity of serum, either *upon* or *in* the brain; and in the greater number of cases the serum is turbid. Not only, however, is the serum turbid, but often larger or smaller portions of fibrin are seen in it.

Now and then the inflammation is so intense, that layers of lymph are found either upon the brain externally, or in the ventricles. Sometimes the fibrin is not in the form of layers, but has a jelly-like appearance; and we find this appearance most frequently at the *base* of the brain. Now and then we find absolute adhesions. In general, when there is such violent inflammation, death takes place too soon for the layers of fibrin to become adherent; but death may not take place so rapidly; the process may be slow; the inflammation may not be so acute; and then adhesions may be formed. If the disease be rather chronic, this fibrin may become very thick and organized; and we may have it to a very great extent.

Inflammation of the Pia Mater.—If it be the "pia mater" which is inflamed, this of course becomes red; there is more or less fluid under it; and the fluid, from being confined under the membrane, (like the vitreous humor in the cells of its capsule,) gives exactly the appearance of jelly. The jelly-like fibrin secreted by the arachnoid, of course lies *upon* the arachnoid; but the jelly-like matter which arises merely from fluid collected in the "pia mater," lies *under* the arachnoid; the "pia mater" being within.

Inflammation of the Dura Mater.—When the "dura mater" is inflamed, there is redness of it; and now and then it has been said to suppurate, and even to have fallen into a state of gangrene. Frequently, a very large quantity of blood is observed after this inflammation, between the "dura mater" and the cranium. The great turgescence is not confined to the vessels of the "pia mater." Indeed, in inflammation of the head, the blood is not confined to the interior, but very frequently extends to the scalp; so that all the vessels of the scalp are exceedingly full, and we find an increased secretion of serous fluid in the scalp itself. When the inflammation of the dura mater is local—the effect of an injury arising either from a diseased bone, or external violence—we know that the superjacent scalp becomes so affected, that it is quite œdematous; and this is a point attended to by surgeons, as indi-

cating, after an accident, great affection at a particular spot within. In general, if the dura mater be inflamed throughout, there is great turgescence of the vessels of the scalp, and a serous effusion into it; but if the inflammation be local, then we may have, exactly over the spot, absolute œdema of the scalp.

Inflammation of the Substance of the Brain.—When the substance of the brain itself is inflamed, we may observe (on slicing it) a very large number of red dots, besides those which are always seen; and the latter may be double their usual size. We frequently, too, see a large number of minute vessels, which ought not to contain blood, like so many fine red hairs, in the substance of the brain. Now and then inflammation, when situated within the brain, runs on to abscess. This is most usually the case when the inflammation is not general, but local. Dr. Baillie says that he once saw the brain in a state of gangrene. We have ourselves seen the "dura mater" in that state, but we never saw the brain so—at least, if we are to judge of its existence from its being very lacerable, and exceedingly offensive. From inflammation, the brain will become exceedingly soft—so as to be a mere pap; something like very thick arrow-root and water. There are various degrees, of course; but still the brain is softened. Now and then we observe softened brain and pus together. The brain generally looks of a dead-white color; and of course the pus has more or less of a yellowish tinge; but frequently they are seen together. It is very rare for the brain to become ulcerated on the surface; but, now and then, such a condition has been seen.

Appearances in Chronic Inflammation.—All these effects that we have mentioned, are frequently observed after *chronic* inflammation of the brain, as well as after an *acute* attack; and after chronic inflammation, there is another effect very frequently seen, namely, induration in that part which has been inflamed. Acute inflammation generally causes, besides the redness, a great turgescence of the vessels, large and numerous red dots, distinct red vessels, a great fulness of the larger ones, perhaps more or less effusion, and perhaps abscess. But besides all this, in chronic inflammation, the brain may become hard. Now and then, *acute* inflammation may produce hardening; but we believe it is more frequently the effect of *chronic* inflammation.

Infiltrations of Pus, and Abscess.—When the substance of the brain has been inflamed, and pus has been produced, it is sometimes not collected in a large quantity, so as to form an abscess; but it is seen infiltrated throughout the brain—so that it has

been found in the substance of the organ, in innumerable points. Where this is the case, the substance of the brain is generally softened; because, in the first place, there must be a great degree of inflammation to produce pus; and when the pus is infiltrated so extensively, of course there cannot be induration. There is a great variety in the degree of this, so that we may have mere drops of pus, in the midst of softened portions, and then still larger drops, till we come to such large ones that they are, in fact, abscesses.—When the pus is collected in the form of an abscess, there is a capsule produced, of various degrees of perfection, so that sometimes it has been known to have distinct coats. The contents of such abscesses will sometimes be exceedingly offensive; although, of course, no air could have had access to them. The parts surrounding an abscess in the brain, may be in all states; either perfectly healthy, or diseased and softened, or altered in color, etc.—The matter of the abscess may, of course, remain there, and be found shut up all around, or it may work its way, and burst into the ventricle; or it may burst into the nose, or into the ear. Abscesses more frequently occur in the hemispheres, than in any other part.

Phrenitis is an inflammation of the parts contained in the cavity of the cranium, and may affect either the membranes of the brain, or the brain itself. It is called primary, or idiopathic, when it exists independent of any other disorder; and symptomatic when it arises in consequence of some other disease, as fevers and inflammatory affections; which species is that most universally met with, the other occurring but very seldom. In warm climates, it appears to be sometimes produced by exposure to intense rays of the sun, and often proves quickly fatal.

Its characteristics are vehement arterial excitement, severe pain in the head. Redness of the face and eyes, intolerance of light and sound, watchfulness and violent delirium.

The causes which give rise to idiopathic phrenzy, are such as directly stimulate the membranes or substance of the brain, or increase the impetus of the blood in its vessels: hence violent fits of passion, intense study, excessive venery, severe exercise, external violence of any kind, such as blows on the head, concussion, fissure, or fracture, an immoderate use of vinous and spirituous liquors, a long continued exposure to the heat of the sun, and the suppression of accustomed evacuations, as hæmorrhoids, menses, issues, milk drying up, etc., may be regarded as the remote causes.

Many acute diseases, and a long want of sleep, may give rise to symptomatic phrenzy.

The idiopathic is usually preceded by long-continued and almost constant watching, or frightful dreams, acute pains at first in the neck and occiput, afterwards extending to the head, deep respiration, inability to recollect circumstances which have lately happened, suppression of urine, and irregular pulse. As the disease advances, the eyes sparkle, and are violently agitated; there is a ferocity in the countenance, with universal restlessness, deafness, great confusion of ideas, violent ravings, intolerance of light, evident pulsation in the temporal and carotid arteries, and the most furious delirium. The tongue is dry, rough, and of a yellow or black color; the face is of a deep red; and the pulse is small, quick and hard.

The symptomatic phrenzy is constantly preceded by acute fever, or some inflammatory complaint, and is usually accompanied with inability to sleep, constant watching, delirium, picking at the bedclothes, redness and fierceness of the eyes, wild look, and deep breathing.

Phrenitis is distinguished from mania by the quickness of the pulse, and the attendant fever and pain in the head; and from that species of delirium which occurs in low fevers unaccompanied with inflammation, by the appearance of the countenance and eyes; for in true phrenzy the face is red, the features are rather enlarged than shrunk, and the eyes protuberate and sparkle; whereas in the delirium supervening to low fever, the face is pallid, the features are shrunk, and the eyes pearly. It is to be distinguished from synocha by the state of the pulse; as in the latter it is strong and full, whereas in the former it is small, hard, and more rapid. In phrenitis, the delirium is the primary affection; but in synocha, it is consequent upon the general fever.

Phrenitis, whether idiopathic or symptomatic, may always be regarded as a dangerous and alarming complaint: it often proves fatal between the third and seventh day, and, if long protracted, is apt to terminate in mania, or great prostration of strength: it often terminates in stupor and insensibility. In children, an effusion of water between the membranes of the brain, or in the cavities of its ventricle, is a frequent consequence. Grinding of the teeth, white or ash-colored fæces, suppression of urine, startings of tendons, with convulsions, cold sweats, a fluttering pulse, and coma supervening on delirium, denote a fatal termination: on the contrary, when there is a copious hæmorrhage from the nose, mouth,

or lungs, or even from the urinary passages or hæmorrhoidal vessels, or when diarrhœa ensues, when the delirium is relieved by sleep, and the patient remembers his dreams, when the perspiration is free and general, the deafness diminished or removed, the pulse less frequent but fuller and soft, and the febrile symptoms become milder, there are hopes for recovery.

Treatment.—The first indication to be answered in the treatment of Phrenitis, is to equalize the circulation, and to check the great determination of blood to the head. This important object can happily be effected by the timely application of the vapor bath, and rubefacients to the lower extremities. Place the patient over the steam, and confine it below the waist; meanwhile use the rubefacients for the purpose of revulsion. This being completed, place the patient in bed, and let warm stones be placed about the feet and legs, and proceed to give a full course of medicine. At this time, if the symptoms suffer an abatement, give tonic medicines and light, nourishing food. If the symptoms should return, repeat the above treatment until you have completed the object, namely, an equilibrium of circulation. It may not be improper whilst the patient is over the bath, to bathe the head and neck with cold vinegar, or water. During the whole time the strictest quietude must be enjoined. The bowels should be relieved by the use of the syringe or aperient medicine.

In violent attacks, the most energetic treatment is necessary, for unless we recall the blood from the brain, and restore an equilibrium to the circulation, the inflammation may go on increasing until it is impossible to effect a cure. The head should be kept in an elevated position, to prevent the accumulation of blood in the organ, and heated stones wrapped in damp cloths placed at the feet and sides.

Between the courses, the sudorific powder may be used to keep up a gentle perspiration. Injections should be given four or five times a day, or oftener if necessary, as these have a powerful effect in counteracting the determination of the blood to the brain. While the head continues hot, cloths wrung out of cold water should be applied to it, and renewed as often as they become warm. After the inflammation is checked, the health is to be restored by a light, nourishing diet, and the usual strengthening or restorative medicines.

In this affection, there is no objection to the free use of cayanne *internally*, and to the extremities in the form of rubefacients. We are aware that the great body of Old School authors strenuously

oppose the use of stimulants in all inflammatory affections, but the universal experience of all Reform Physicians, for the past sixty years, has proved conclusively that Cayanne and Lobelia may be administered with the most perfect safety and greatest benefit in all inflammatory forms of disease.

The wise remark of the great Bœrhaave, is particularly applicable here, "keep the head cool, the feet warm and the bowels open."

We find our Old School authorities also, are strongly opposed to emetics, and regard them as very dangerous, yet the operation of the Lobelia has always been productive of good, and none of the evils predicted by the Allopaths, have resulted from its frequent and constant administration. The superiority of our emetic, is not only shown here, but in various other affections. The best preparation is that of

Sem. Lobelia inflata, (Lobelia,)	grs.	60
Capsicum annuum, (Cayenne,)	"	30
Cypripedium pubescens, (Nervine,)	"	30

Mix in cup of boiling water, and give one teaspoonful every fifteen minutes, till emesis is produced.

In cerebral affections, the physician should never fail to enqire into the state of the bladder, for there is often retention of urine, and this must be obviated by drawing off with a catheter, two or three times each day.

In this disease we are justified in giving a vigorous purgative for the purpose of creating such action as will withdraw the blood from the brain: for this purpose you will find this formula valuable:

R.—Leptandrin (Black rt.,)	grs.	6
Podophyllin, (Mandrake,)	"	3
Capsicum, (Cayenne,)	"	1

Mix with syrup, and if it does not operate in three or four hours, repeat the dose.

RAMOLLISSEMENT—SOFTENING OF THE BRAIN.

Description and cause.—Before we leave the subject of disease of the encephalic mass, we will mention an affection which has only been described by a few writers within the last fifteen years, but to which considerable attention has been paid both

in France and England. Some points in its pathology have been made out. We refer to a softening of the brain, or as the French term it, Ramollissement.

In the first place, the softening varies greatly in degree, from the consistence which naturally belongs to the cerebral substance, to that of thin cream. In its minor degrees it may be easily overlooked; and is more perceptible by the touch than by the eye.—The cerebral matter is less coherent, but is not yet discontinuous or broken down. It may be washed away, however, by letting a slender stream of water fall upon it; and the softened parts are thus easily distinguishable from those which retain their natural consistence. In the next stage of softening we recognize the complaint at once, for the softened parts undergo a change of form by their own weight: parts that are prominent in the healthy state, as the optic thalami, corpora striata, and convolutions, sink down, as it were, and are more or less flattened. If you make a horizontal section through a part thus diseased, a portion of the softened brain adheres to the knife, and is removed by it, and a depression is left. In a still more advanced degree, the natural texture of the organ in the softened part is entirely destroyed and confused by the change, diffluent: you may pour the softened matter out.

The *color* of the softened portions varies also considerably.—Sometimes they are unchanged in color: sometimes they are quite white, and present a strong contrast with the tint of the neighboring parts: sometimes they are marked with various shades of redness, from a rosy pink to an orange, or deep red, or even a mahogany brown. Often there are red spots mixed irregularly with the softened cerebral pulp, and giving it very much the appearance of a mixture of raspberries and cream. In other cases we find the softened mass of a pale yellow, or straw color, infiltered, as it were, with purulent matter: and sometimes it is mixed with serous fluid.

Softening of the brain is usually partial. It may occupy any part; but it is said to be more frequently met with in the gray than in the white matter; and more often in the gray matter of the convolutions than of the more central parts of the brain.

You will find softening of the septum lucidum, and of the fornix, occurring very frequently in connection with an accumulation of serous fluid in the lateral ventricles.

Now it is well established that softening of the brain is a common result of two very different morbid conditions. It is often caused by inflammation of the softened part: it is often caused,

also, if we may say so, by its starvation; by the diminished supply of arterial blood, in consequence of diseased blood-vessels.

Can we distinguish these two forms of softening from each other by their physical characters? Sometimes, we can: and sometimes, it must be confessed, we cannot.

The same parts that are most liable to have their consistence diminished through an inflammatory process, are also most liable to be softened from defect of nutrition. The most vascular parts of the brain, in short, the gray matter of the convolutions, and the gray matter of the thalami, and corpora striata.

It is stated, however, that softening of the corpus callosum, septum lucidum, and fornix, from obliteration of the arteries, is extremely rare.

If there be pus mixed with the softened brain, we know that there has been preceding inflammation. Again, if we find the arteries impervious, we conclude that the softening has not been inflammatory. Dr. Carswell states that the obliterated arteries may occupy the softened cerebral substance, and may often be seen ramifying through it; and that when this substance is removed by pouring water on it, the solidified vessels retain their situation, and feel sometimes as hard as fine wires. But we come to the same conclusion if we find the larger vessels, the carotid or vertebral arteries, obstructed by ossification; and a large portion of the brain unnaturally soft.

We have no certain test of the nature of the softening in its being red. The redness may be the result of inflammatory congestion; but cerebral hemorrhage may occasion softening; and, on the other hand, softening may give rise to cerebral hemorrhage.—*This* may be said, however; that the redness is seldom *considerable* when the softening proceeds from obliteration of the arteries. When the softness extends much beyond the redness, or the effused blood; or when the redness occupies several small portions only of the softened pulp; we may presume that the blood was extravasated subsequently to, and in consequence of, the softening. On the other hand, when redness and vascularity can be traced into the brain, some way beyond the softened part, we may regard the softening as the consequence of inflammation. And we adopt the same belief, with still greater confidence, when around the softened and disorganized pulp we find the cerebral substance *hardened*, and of a uniform reddish color.

M. Durand-Fardel, in the latest and best work on Softening of the Brain (*Traite du Ramollissement du Cerveau*—Paris, 1843,)

states, that in eighty-eight cases observed by himself and others, the convolutions, including the subjacent white matter, were the seat of softening in fifty-three cases. Of these last the convolutions were alone affected in fifteen cases. The corpora striata were softened in fifteen cases. The disease is not restricted to the grey substance of the brain. Rostan says that softening or *ramollissement*, as he terms it, of the cerebral or pulp, results from inflammation : 1, when the color of the altered part is rosy; 2, when it contains a certain quantity of pus; 3, when febrile phenomena have been observed during life. M. Durand-Fardel divides ramollissement or softening into acute and chronic: the first variety or stage occupying a period of from twenty-five to thirty days. Acute softening of the brain is properly an inflammation characterized by congestion, tumefaction, adhesions, etc.

Some of the French Pathologists have laid down this rule, as the result of their experience in regard to softening of the brain —that it is attended, during the earlier part of its progress, with a permanently contracted state of the flexor muscles of one or more of the limbs. In some cases the contraction of these muscles amounts only to a slight degree of stiffness; in others it reaches such an extent, that if the arm be the part affected, the hand is clenched, and remains presssed against the shoulder; or, if the leg, the heel is carried up to the hip. Sometimes this tonic spasm is so strong that you cannot extend the limb; and the attempt to do so gives the patient pain. After a certain time the rigidity is succeeded by complete relaxation; the contracted limb has become utterly palsied.

Dr. Abercrombie even goes so far as to say, that judging from the cases that have fallen under his own notice, there is no foundation for the statement that *ramollissement* is distinguished by tonic contraction of one or more limbs; that the same thing is met with in connection with affections of the membranes, without any disease of the cerebral substance; and with the encysted abscess of the brain; and that it is frequently observed in cases of typhus fever where there is much cerebral disturbance, but which terminate favorably. We will give you the general result of his experience in this matter as being untinctured with any wish to reduce his facts into conformity with a preconceived opinion, or hasty generalization. He states that "the cases which terminate by ramollissement seem in general to be characterized by convulsion, more or less extensive, followed by paralysis and coma; the convulsion ceasing for some time before death, and being succeeded

by the coma." But he saw one case in which "the convulsion continued with the utmost violence till the very time of death." In another instance "there was no convulsion at all, but a sudden attack of palsy, exactly resembling the ordinary attack of hemiplegia from other causes." In two cases he found "ramollissement of very limited extent, in connection with symptoms of long standing, both cases being at last rapidly fatal by a sudden attack of convulsion." In other cases "there was extensive destruction of the cerebral substance, without either paralysis or convulsion, and even without coma."

When you find the softened substance infiltered with purulent matter, you may call the case one of *suppuration of the brain.*— But suppuration also occurs in another form; viz., in the form of *abscess.* The pus is contained in a regular well-defined cavity, surrounded by cerebral matter in a healthy or in a hardened state. No suppuration occurring in the brain, there is the same puzzling diversity of symptoms as in cases of complete softening. Still, in the main, there seems an approach to the same order of symptoms: convulsions in the earlier period constituting the most prominent feature of the disease; paralysis is the latest.

Treatment.—We have no *particular* treatment to recommend in this form of disease, since, if the brain is thus disorganized and such a lesion is produced, we can hardly expect any treatment will effect a cure, or even afford much relief. All we can advise in such cases is to attend to the constitution and treat on general principles, or remove such symptoms as may be within the reach of remedies. We have described and given the symptoms, in order that the reader may be able to make a correct diagnosis of this disease, should it ever present itself.

HYPERTROPHY OF THE BRAIN—ENLARGEMENT OF THE BRAIN.

Description and Causes.—We mention this form of disease, not so much for the purpose of offering any remedial means as to prevent our younger practitioners from mistaking it for other affections.

There is a very good memoir upon the subject, by M. Dance, published in the fifth volume of Breschet's *Repertoire d'Anatomie*, and Andral gives an account of the disease in his *Pathology.* It

appears that Morgagni had not overlooked it, for he speaks of instances in which the brain seemed too big for its bony enclosure. When, in these cases, the skull is sawn through, the upper loose portion of the bone starts up, as if moved by a spring, and the edges of the bone remain widely apart. Lænnec, also, in Corvisart's *Journal*, states that upon opening the bodies of persons whom he had thought affected with hydrocephalus, he had been surprised at finding a very small quantity only of fluid in the ventricles, while the convolutions on the surface of the brain were strangely flattened, proving that the cerebral mass had undergone strong compression, which could only have arisen from its preternatural volume, and undue nutrition.

Hypertrophy of the brain has not been long known, and it is by no means common. Its pathological characters are, approximation of the convolutions, so that the anfractuosities are almost destroyed, and the brain exhibits a smooth surface; the ventricles, too, are effaced or nearly so, and the membranes of the nervous centres seem distended almost to bursting.

In the encephalon, it has only been seen in the cerebral hemispheres, and, in these cases, if the bones of the cranium are not formed on a larger outline, they press upon the brain, so as to disorder its functions; the patient becomes dull, almost idiotic, and suffers greatly from depravation of the senses of vision and audition, and from headache; epilepsy and convulsions have, also, been produced by it.

Hypertrophy of the brain, or at least a condition of that organ predisposing it to undue and more or less rapid augmentation in bulk, is often congenital. Thus children are not unfrequently born with heads of dimensions far exceeding the usual standard—while, in other instances, the head soon after birth is found to augment rapidly in bulk, disproportionately to the growth of the rest of the body, and within a short period to attain an enormous magnitude.

When the cranium is developed in the same ratio with the brain, at first no morbid symptoms are produced, or only slight ones. In almost every case, however, we have observed more or less apathy, dullness, and drowsiness, to accompany these cases of undue development of the brain, from a very early period.

Diagnosis.—After the disease has existed for some time, and particularly when there is a disproportion between the morbid development of the brain, and the expansion of the cranium, the patient becomes affected with apathy to external objects, a disposi-

tion to somnolency—great irritability of temper, giddiness, habitual headache, attended with severe exacerbations at irregular intervals, and inordinate appetite. The intellect becomes more and more obtuse, verging occasionally upon complete idiocy. There is, usually, a debility of the muscles of the extremities, particularly of the inferior, which constantly increases, until, finally, complete paralysis results.

The bowels are usually torpid, and the pulse remarkably slow. In many cases, the muscles are affected with convulsive twitchings, at first sight, and occurring at long irregular intervals, but gradually becoming more severe and frequent, until regular convulsive paroxysms ensue. The convulsions, not unfrequently, assume all the characteristics of epilepsy.

In some cases there suddenly ensues a considerable reduction, and, occasionally, an entire abolition of sensibility. In other instances, the patient is suddenly attacked with acute delirium, quickly followed by complete coma and death. Mania was observed by Andral in one case. In the majority of cases that have fallen under our notice, the patients have been inclined to fat.

The disease is divided by Andral into two stages: 1st. The chronic, marked by few symptoms, or simply by slight obtuseness of intellect—more or less headache, either permanent or intermittent—vertigo, apathy, drowsiness, broken at irregular intervals by convulsive paroxysms. All of the foregoing symptoms may occur, simultaneously or consecutively, in the same case, or only one or a part of them may be present. 2d. The acute stage, marked by sudden attacks of violent convulsions, idiocy, epileptic paroxysms, deep coma, or the ordinary symptoms of acute hydrocephalus.

It is important to distinguish the hypertrophied state of the brain from chronic hydrocephalus, to which, particularly in its advanced stages, its phenomena bear a strong resemblance, so much so as to have caused the two to be not unfrequently confounded. Drs. Lees and Muncmeyer point to a particular and very striking projection of the parietal protuberances, in hypertrophy of the brain, as a valuable guide in our diagnosis, while Dr. Hennis Green suggests the difference in the sensation communicated to the fingers when pressed upon the fontanelles in children affected with the two diseases, as a diagnostic sign. The sensation being that of a tense membrane filled with water in cases of hydrocephalus, and of a firm solid substance in cases of hypertrophy. Dr. Manthner, in his work on Diseases of the Brain, lays down the following diagnosis between these two affections: In hypertrophy, it is

the posterior part of the skull which is first observed to become abnormally prominent, the projection of the forehead occurring subsequently; whereas, in chronic hydrocephalus, the enlargement of the forehead is one of its first results. The latter affection is usually associated with a general emaciated condition of the body; the former with a leucophlegmatic habit, and an increased deposition of fat. The constitutional symptoms likewise differ in the two affections—restlessness, convulsions, and sopor, mark the *early stages* of chronic hydrocephalus, while spasmodic affections of the respiratory organs are among the earliest indications of hypertrophy of the brain, but seldom occur until the advanced stage of hydrocephalus.

Treatment.—Little or nothing can be effected by way of cure in this disease. It consists of an organic lesion, and medication cannot be of much avail. We must always recommend rest, low diet, and yet support the strength by such constitutional treatment as the symptoms may seem to indicate. When this affection occurs in a cachectic habit of body, any thing that depresses the powers of the body may do harm. Pure nutritious diet, change of scene, and pleasant exercise, should be recommended.

If this disease attacks infants, and it is very liable to be found during the early periods of life, some relief may be obtained from the use of iron, such as Vinum Ferri, (wine of iron,) or the citrate of iron.

Some authors recommend the iodide of iron.

ATROPHY OF THE BRAIN—WASTING OF THE BRAIN.

Description and Causes.—This is the opposite of the last mentioned disease; it is a wasting of the substance of the brain.

There are two forms of this affection: one is congenital, and results from imperfect development, or an arrest of development, of the brain in its fœtal state. In the other the change appears to take place in consequence of disease, either in the membranes of the brain, or perhaps in its arteries; though the effect of disease in the arteries is usually softening, which *is* a species of atrophy. But in the atrophy to which we now allude, the *volume* of the atrophied part is diminished, not its *consistence*. And the diminution of size may extend only to a few convolutions, or it may be most manifest in the interior of the organ; in the optic thalami and corpora striata for example.

The disease is marked by a gradual wasting of the body, unaccompanied either by a difficulty of breathing, cough, or any evident fever at first, but usually attended with a loss of appetite and impaired digestion, depression of spirits, and general languor.

The causes which commonly give rise to it are, a poor diet, unwholesome air, excess of venery, scrofulous disposition, fluor albus, severe evacuations, continuing to give suck too long, a free use of spirituous liquors, mental uneasiness, and worms; but it frequently comes on without any evident cause.

Young persons, of both sexes, who are of a delicate make, and at the same time grow very fast, are apt to be attacked with this complaint before they arrive at the age of puberty. It is particularly prevalent in large and populous cities, where children are deprived of ready access to exercise in pure air, or where they are confined in crowded school-rooms. Children, also, who are employed in manufactories, where their occupation and confinement are such as to weaken and enervate them, are very likely to be attacked with it.

Diagnosis.—Sluggishness, lassitude on the slightest exertion, depravity and loss of appetite, wasting of the muscular flesh, paleness of the countenance, with bloating, swelling, and prominence of the belly, œdema of the lower extremities, an irregular and generally costive state of the bowels, a change in the color and odor of the fæces, and fœtid breath, mark the beginning of the disease. When these symptoms have continued for a little time, they are followed by alternate paleness and flushing of the countenance, heat and dryness of the skin, a feeble and quick pulse, thirst, fretfulness, great debility, and disturbed sleep.

Treatment.—Atrophy, arise from whatever cause it may, is usually very difficult to cure, and not unfrequently terminates in dropsy.

In all cases of atrophy, the patient should make use of food that is nutritive and easy of digestion, and it should be taken frequently, but in a small quantity at a time. He should likewise breathe a pure, dry, and wholesome air; taking such moderate exercise every day as his strength will admit, particularly on horseback.

Use repeated and full courses of medicine, with the best tonic bitters. If worms are the cause they should be destroyed by the vermifuge medicines advised under that head; if by sexual excesses, or the continuing to give suck too long, these must be discontinued; if from severe evacuations, they must be suppressed; if from

impoverished diet and unwholesome air, these must be quickly changed; if from a scrofulous disposition, the treatment adopted for that disease is required; and if from a venereal taint, which is sometimes the case, constitutional remedies and regimen applied under that form of malady, should be resorted to.

ACUTE HYDROCEPHALUS—INFLAMMATION OF THE BRAIN.

Description and Causes.—This is a form of disease which frequently occurs in children, and especially in those of a scrofulous diathesis. We have treated of Dropsy of the Brain, but that was merely one of the sequents of inflammation of the encephalon. It is from this symptom, however, that the disease receives its name; ὑδωρ, *water*, and κεφαλη, the head. It may occur at any age up to the twelfth or fourteenth year, but seldom after that period.

Whatever tends to deepen and aggravate the scrofulous *diathesis*—improper or insufficient nutriment, exposure to cold, inadequate clothing, impure air—may be regarded as a *predisposing* cause of acute hydrocephalus. And whatever tends to call scrofulous *disease* into action, may be reckoned among the possible *exciting* causes of acute hydrocephalus. Any general irritation may bring it on. It sometimes supervenes upon the drying up or repression of eruptions, as tinea capitis, or sores behind the ears.—Such eruptions, therefore, occurring in strumous children, we must not attempt to cure suddenly; and free purging should be employed when they begin to disappear. The irritation produced by difficult and painful dentition is a very frequent exciting cause; and this is a source of danger which, in many cases, may be obviated by timely and judicious management. Violent heating exercise has sometimes, apparently, kindled the cerebral inflammation. Among the exciting causes we may place all physical injuries which jar and stun the brain; blows on the head, falls from a height, although the head may not be the part struck; and all moral agencies which shock or strongly disturb the nervous system; severe bodily pain, violent fits of anger, sudden fright.—Golis even goes so far as to say that great terror and distress of mind *in the mother* during the latter months of pregnancy may lead to the occurrence of acute hydrocephalus in the child; and he brings forward this curious fact in support of his opinion: A large proportion of the children that were born in Vienna soon

afier the bombardment of that place by the French, in 1809, were seized with convulsions within a month after their birth, and died of inflammation within the cranium; effusion of coagulable lymph between the membrane, and of serum in the ventricles, being discovered by dissection.

After what we have already stated in respect to inflammation of the brain in adults, you will be prepared to hear that acute hydrocephalus (remember, we restrict that term to the same inflammatory malady as it occurs in strumous children) furnishes a great variety of symptoms; and many variations in the mode of their coming on, and in their combination, and succession.

It is of the greatest importance to recognize acute hydrocephalus, in its *earliest* stages, and even to look out for indications of its approach. We shall, therfeore, describe those changes in the state of the young patient, which have been found to be, in many cases, premonitory, that the disease was impending. But such symptoms are by no means always followed by acute hydrocephalus; nor is acute hydrocephalus always preceded by such symptoms. Still, when they do occur, they should put us upon our guard.

Diagnosis.—It frequently comes on, in children, with heaviness of the head, dullness of the mind, and a disturbance of sleep; the child frequently has frightful dreams, wakes screaming, is found to be restless both up and in bed, and to be exceedingly peevish in temper. There is, likewise, a continual knitting of the brows, which is a common symptom in inflammatory states of the head. The child, too, is frequently observed to walk insecurely; to totter a little, as if it experienced a certain degree of vertigo. Some say they have observed children, in these circumstances, have a great trick of putting their hands behind their head, and pulling the back of their neck. There is occasionally darting pain in the head; and there is feverishness. The body is hot, and the pulse is quick, and exceedingly various. From feverishness, the child's nose and lips are dry, and this gives rise to a degree of itching, so that the child is continually picking his nose and lips. Of course there is thirst, and loss of appetite; and frequently there is fœtid breath. The stomach and bowels are disturbed; the tongue is white, yellow, or brown; nausea is experienced, and also vomiting and costiveness, though occasionally there is purging and griping. The fæces are observed to be white, and to have a sour smell; though, on the other hand, they are sometimes dark and very fœtid. The abdomen is frequently full, especially at the epigastrium, and there is frequently tenderness on pressure; but this

is particularly noticed at the epigastrium, and the right hypochondrium.

When the disease is formed, it has two stages; and it may occur without any premonitory symptoms. Not only may the latter vary in duration, from a day to a few weeks, but they may last only for an hour or two, and, indeed, they may not exist at all, for the child may be seized in a moment.

When the disease occurs, there is a severe pain in the head—shooting through it—so that the child lays its head in its mother's lap, and is continually crying—"Oh, my head!" It is awakened, too, from sleep, by this violent shooting pain in the head. The latter is found to be very hot, and there is intolerance of light and sound, and, from the sensibility of the retina, the pupil is very much contracted. From the extreme irritation of the nerves, there is strabismus; but some ascribe this to *paralysis* of certain nerves, so that some muscles get the ascendancy over others. However, it appears before there are any signs of paralysis, during the mere excitement of inflammation. Besides the squinting, there are convulsive spasmodic motions of other muscles, and frequently there are general convulsions. Sometimes there is delirium at last, but sooner in some cases than in others; and the delirium may not be constant. In the first instance, it is *not* constant.—The child is observed to turn its head continually on the pillow—never to be at ease; and there is a peculiar motion of its arms, so that it saws the air with its hands, and tosses them over its head. Whenever we observe these symptoms, we may be sure that the disease is formed. There is now violent pyrexia; the pulse is rapid and full; and Golis says that the abdomen sinks and becomes flatter, and that this is a pathognomonic sign of the disease, so that if this occur, we may be certain as to the nature of the disease. There is, in this stage, costiveness; and the stools are usually very fœtid, and of a very dark color—something like tar.—About this time the abdomen (especially the epigastrium, or the right hypochondrium) is exceedingly tender; and the vomiting which occurred as a premonitory symptom, is now perhaps very frequent. These symptoms, like the premonitory, may exist for various periods, but, of course, they cannot exist so long as the premonitory symptoms may. They may last only a few hours, or they may last a day or two, or they may be extended to seven days, but they very seldom go beyond that.

After this, comes on the second stage, which is that of exhaustion. There is now more or less blindness, and the child is unable

to discern one object from another; and perhaps it cannot perceive the light, which is now borne very well. There are no longer twitches; the pupils are no longer contracted, but dilated; and sound no longer produces disturbance, but appears not to be heard. There is a general insensibility; and the child, from being delirious and irritable, is now drowsy; and the convulsions come on with more intensity, as likewise does the squinting. The pulse is no longer quick, but weak and slow; and, in fact, an apoplectic state occurs. There is sometimes hemiplegia, or local paralysis of the limbs; and there is likewise paralysis of the eyes. Sometimes the two stages are very distinctly marked; but they certainly run into each other, so that both may exist together in a limited degree. This may last for three weeks, but it rarely extends much longer. The first stage does not subside entirely, but there is a great diminution of it; and the second stage comes on, but is not fully formed. The first stage, without the second, rarely extends beyond seven days; but when the second stage begins before the first has come to a close, the two may continue together for two or three weeks. Now and then the pulse is quick throughout the disease, and when the apoplectic state comes on, the pulse is as rapid as before, or very rapid.

It has been observed that, before death, after the second stage has been fully formed, there are again symptoms of excitement, so that some writers have divided the disease into three stages. But this does not occur very frequently. Now and then, however, there is excitement; and the pulse, after it has been slow, will become quick. There will appear to be some sensibility of the eyes and ears. Even the muscular powers, which have been implicated, will be partially restored, and likewise the mind, so that not only the delirium, but even the stupor, will pass off, and the child again knows its friends and parents. Some of these symptoms will occur without the others. Occasionally the mind will be restored to a certain extent, and the senses return, and yet the pulse will continue low. Now and then the pulse will be rapid, and no other change occur. But, now and then, this restoration of the powers of the mind, and the powers of the volition in the muscles, will take place where great effusion is found after death, and where there is every reason to believe that effusion existed, at the time that this restoration occurred. The common people term this "a lighting before death," and we observe, in many diseases, an apparent amendment just before the fatal event. But when this last change does occur, the pulse generally becomes very

rapid, and for the most part, whatever restoration there may be, there is observed more or less stupor, and perhaps convulsive actions.

Treatment.—We must remember in this form of disease that our patients are *children*, and for the most part, weakly and scrofulous children. We shall always find full and free emesis with Lobelia to be indicated. The child must be kept for most of the time, under the influence of this remedy, since it will aid in producing resolution better than any other article know. Unless the patient is very low, we must give quite active purges, and even of the hyrogogue character.

When this disease first becomes an object of medical attention, the remediate measures generally advised in all acute preternatural excitations, attended with an undue determination of blood to any given part, will also be applicable here. Full courses of medicine to equalize the circulation, must be properly and repeatedly administered.

The diaphoretic powders will form important auxiliary means, and should be repeated at intervals of every two or three hours between the courses.

Sinapisms, composed of corn meal and a quantity of cayenne pepper, may effect a beneficial purpose applied to the feet. The bowels should be relieved daily by the exhibition of the bitter-root and cayenne, equal parts—and by the aid of enemas, composed of composition, No. 6, and cayenne.

Cold effusions of water and vinegar, are accounted useful in the treatment, as they favor a revulsive influence. The efficacy of this plan of medication, justifies the expectation of speedy amendment and restoration in the inception of the inflammation of the brain, and even in the advanced stages of most cases; but where lesions and disorganization have already become established, any course of treatment whatever will prove ineffectual. Nothing more can be done than to palliate, if possible, the urgent symptoms and lessen pain.

Our stimulating liniment applied to the back of the neck, spine and abdomen is beneficial.

Dr. Stokes makes the following sensible remarks:

"The term *effusion* is one of the bugbears of medicine. Many patients are lost from the prevalence of false ideas connected with this subject; for, as soon as *effusion* is supposed to have set in, the efforts of the practitioner are given up. Hundreds of patients die of bronchitis and pneumonia, in whom life might be saved if the

symptoms of *effusion* had been treated for those of inflammation; and so it is with respect to the brain. This effusion is not the disease—it is not even a constant result of the disease. We have no certain means of ascertaining its existence; and we know that, by a persistence in antiphlogistic treatment, life may be often saved, even after all the supposed symptoms have occurred."

Take this with you as a rule in medicine: always to keep your eye more upon the causes than the effects of the disease.

And this remark will apply to other complaints as well as acute inflammation of the brain.

A word in reference to the *prevention* of this disease: concerning which your advice will be sure to be asked again and again. In families, in which acute hydrocephalus has occurred, or which show decided marks of the scrofulous diathesis, the earliest attention should be paid to any deviation from the healthy condition of any of the functions. Weaned children in such families should be kept upon a nourishing but light and unstimulating diet, consisting of well-dressed vegetables, farinaceous substances, and a moderate proportion of animal food. Particular care should be taken to keep the bowels regular; not that weakening purges should be given, but the bowels should be fairly relieved at least once every day. Any disturbance of the digestive organs should be immediately corrected; by antacids, laxatives, change of diet, and by the neutralizing mixture. Such children should also, if possible, be brought up in the country, and be freely exposed to mild and dry air; and in winter great care should be taken to have them sufficiently clothed. During the hazardous period of dentition, the state of the teeth and gums must be sedulously attended to.

There is another caution, too, which you will often find reason for suggesting: and that is, not to press or encourage the development of the mental faculties in children who are quick and intelligent beyond their years. Parents are apt to be proud of the early acquirements of their little ones: they are not aware that such precocity of the mind implies danger to the health of the body; and they provide them with instructors, and to a certain extent abridge their hours of exercise and amusement, that they may do justice to their cleverness. But it is our duty to admonish them of the risks they are thus running: to advise them to think only, for the present, of corroborating the corporeal strength of the child; and to avoid over-cultivation of his intellect until this dangerous period of his existence is got over.

The existence of dropsy in the brain cannot be determined to

a certainty, as the symptoms which attend collections of water in the brain also accompany an inflammatory action in it. Precisely the same symptoms also arise from determinations of blood to the head from exhaustion of strength. The treatment, however, applicable to one case, will be equally suited to a similar condition of the general system in the others. The treatment must be directed to assist the efforts of nature. The means to be employed are, injections, the vapor bath, emetics, the warm foot-baths, volatile stimulants applied to the head, such as whiskey or vinegar; together with frequent doses of stimulants, which may be rendered more efficacious by the addition of small portions of Lobelia. In cases of dropsy of the brain in the last stage of disease, such as cholera, dysentery, etc., it will, of course, be of little use to administer medicine with a view of curing the dropsy.

Sometimes an oppressed stomach will occasion symptoms resembling those arising from inflammation of the brain, and be entirely relieved by the operation of an emetic. Even though there should not be foul matter burdening the stomach, still a lobelia emetic may prove beneficial, more especially if there be fever.

It is difficult to lay down any precise rule for the repetition of purgatives, as this depends upon the violence of the disease, constitution, etc.; but, as a general rule in severe attacks, they may be given daily, and in protracted cases every two or three days.—In most cases immediate amendment follows their administration, either when their is inflammation or serous effusion.

It is indispensably necessary in this, as in other diseases, to pay strict attention to the capillary system. Such medicines must be given, and such means taken, as are calculated to promote *perspiration*. In addition to bathing the feet and surface, mentioned above, *sudorific* medicines may be given. For this purpose give the *sudorific* or *sweating drops* in doses according to the age of the child, to be accompanied with free use of the infusion of *spearmint*, (mentha viridis;) the same tea or infusion to be given when the child is thirsty. This plant has a three-fold effect upon the system: *First*, it allays the irritability of the stomach: *Second*, it promotes gentle perspiration: *Third*, it promotes a preternatural discharge of the urine.

Should the sweating drops prove too stimulating; and thus increase the febrile excitement, substitute the *diaphoretic powders;* and give particularly at night, to allay irritation, procure rest, promote perspiration, etc.

Should all these means fail of producing perspiration, which,

from the dry and constricted state of the skin, may occasionally be the case, let the child be held in the arms of its mother or nurse, and a blanket thrown around it, and let both be placed over a tub containing a strong decoction of bitter herbs. The steam must be permitted gradually to come in contact with the body of the child; after which let it be wrapped in a blanket and placed in a bed or cradle. If benefit is experienced from this process, let it be repeated.

In almost every case of *hydrocephalus* there is great heat or inflammation of the head; and, therefore, it is necessary to apply refrigerant or cooling lotions or applications to it. Equal parts of *spirits*, *rain water*, and *vinegar*, to which a little *salt* has been added, may be often applied to the head, tepid. We have applied it cold and sometimes warm; and when we ascertained which afforded the most relief, we have continued it of the same temperature.

Should this only partially relieve, or should it lose its efficacy after frequent application, let it be omitted, and apply *hops*, simmered with *vinegar*, to the whole head. Great benefit is invariably experienced by the application. The child, after great restlessness and pain, will generally fall asleep immediately on applying them. *Camphorated spirits* will also, be very good to apply.

DELIRIUM TREMENS—MADNESS FROM LIQUOR.

Description and Causes.—This disease is extremely common, both in this country and in many others, and is owing to the abuse of spirituous liquors, or of opium, and other narcotics; for well-marked cases of the disease are seen in opium-eaters, and something closely resembling it in persons who use tobacco too freely. It is one of the most frequent diseases, that fall under the care of physicians to extensive eleemosynary establishments. It consists essentially of delirium with tremors—hence the name "Delirium Tremens;" and it is placed in the arrangement of one pathologist, (*Dubois* d'Amiens,) as a terminating point to convulsive affections, and as forming a kind of transition between these and mental diseases.

Diagnosis.—In hospital practice, we meet with it in three forms. The *first*, is, perhaps, little more than simple intoxication—the tremors and hallucinations, passing off as the effects of the stimuli,

cease. In the *second*, the tremors continue longer with little or no mental aberration; and in the *third*, the whole nervous system is thrown into the greatest irregularity; the upper extremities being tremulous in a high degree, and the mind completely unhinged; so that the senses of vision and audition are affected with the strangest hallucinations; and, at times, the patient is furiously maniacal. If this state continue—as it often does for days—there is during the whole time, a total want of sleep, or the forgetfulness is for an extremely short period. Usually, the patient fancies that he sees objects in the chamber—insects crawling on the walls or bed-clothes, which he occupies himself in endeavoring to lay hold of; and hears persons calling upon him from all parts of the house, so that if permitted, he would run about from one place to another, responsive to the ideal summons.

The organic functions participate with the animal functions in the disorder. The respiration is generally short and hurried; the circulation quick and feeble; and, in bad cases, almost, if not wholly, imperceptible at the wrist; and the body is bathed in a cold clammy perspiration. The digestive function is, likewise, generally impaired—the appetite being null; and, frequently, everything taken into the stomach is immediately rejected.

Causes.—Abuse of alcohol, or of opium, is doubtless, the exciting cause of the disease; and, hence, it is more frequently seen in large towns than in the country; and amongst the lower, rather than the better, classes.

It may make its appearance during the sustained use of those articles, but this is probably rare. In almost all the cases, that have fallen under our care, and where the history could be traced, it supervened on the withdrawal of the accustomed stimulus.—Under such circumstances, the function of innervation, habituated to excitement, is thrown into great irregularity, as it ceases to receive its wonted stimulation.

A recent writer (*Stokes*,) lays considerable stress on the two opposite conditions under which it may occur—after a debauch, or on the sudden suspension of the habitual use of alcoholic liquors. In the *first* case, he believes the pathological state to consist in gastritis, accompanied with high excitement of the brain and nervous system, owing to the absorption of alcohol or to sympathy with the stomach, and tending strongly towards inflammation of the brain; yet, in such cases, the gastritis may be masked by the irritation in other organs; the abdomen may not be tender, nor the tongue red, and all the symptoms may indicate a morbid

condition of the brain, and yet violent gastric inflammation may be existent at the time. In the *second* case, the functions of the brain, Dr. Stokes considers, are disturbed by the abstraction of an accustomed stimulus.

Delirium tremens is a disagreeable and uncomfortable complication in severe wounds and bruises, and is often seen in our hospitals; but it is questionable whether it ever occurs except in persons, whose constitutions have been predisposed to it by the abuse of some kind of narcotic. This form of delirium has been termed *delirium traumaticum*, and it certainly does not appear very unlike delirium tremens in its characteristic features. It is asserted, too, to have been induced by great mental depression; but such cases must be exceedingly rare. A Danish writer finds but one case in one hundred and seventy-three in the female, but in this country, as well as in England, the ratio of females is very much greater: probably the female, owing to her greater nervous impressibility, is more liable to it, but escapes only in consequence of avoiding more the great causes.

Pathological Characters.—As in the other neuroses, the appearances on dissection have thrown no light on the nature of the disease. Frequently, none are visible; at other times, signs of hyperæmia of the nervous centres, or of inflammation of the meninges, with effusion of serum into the ventricles, and of coagulable lymph from the vessels of the arachnoid, have been met with. A distinguished pathologist, (*Andral*,) opened several persons who had died of the affection, and although he found, at times, evidences of disease in the meninges, he did not hesitate in dating their occurrence long after its invasion. The author's pathological investigations have led him to the conclusions mentioned above. He has not been able to discover any pathognomonic appearances; and it is probable, that the disease is situate in conditions of the neurine itself, which are inappreciable.

The great body of our physicians have not made a distinction between a *stimulant* and an *irritant*, these two words are confounded, and hence the continued use of alcoholic medicinal preparations. We find a pure *stimulant* to be that, which will increase or arouse the vital powers of the system to a healthy natural action, and no more than that. We define an *irritant*, to be that which will excite the organs *above* a natural action, that will increase the pulse, so that they may beat more frequently than in health. This may be a distinction only in degree, yet, if

we apply it to certain articles of medicine, we may see the force of our reasoning.

Suppose the pulse of a debilitated patient is down to fifty or sixty, and we administer an alcoholic stimulant, this immediately excites the system and raises the action of the heart to eighty or one hundred, when the healthy pulse was seventy. Here is an unnatural excitement and the powers of the patient will fall, as soon as the irritating cause has ceased to operate, just as far *below*, as it was raised *above* the normal state. While therefore *temporary* relief may be the result, yet debility must succeed. If now, this patient is stimulated with African pepper, or any pure stimulant, it will be found that the pulse will not rise above its healthy beat of seventy per minute, and hence there will be no sinking or debility consequent upon over action or irritation.

But this will appear more evident, by giving these articles to a perfectly healthy temperate man. Behold the excitement produced by the brandy, see the unnatural flash of the eye, the acceleration of motion, the flow of words, and so on to intoxication, and then witness the stupor and depression which corresponds to the over excitement produced. Such are the irritating effects of alcohol. Now let the same healthy man drink freely of Capsicum tea, very strong, and a large quantity, which is a powerful *stimulant*, and we see no unnatural excitement in the system, no increase of the pulse, no symptoms that indicate irritation, and hence we have no debility and depression. The former is an irritating poison, the latter a pure stimulant that acts in harmony with the laws of life.

This disease seldom attacks the intemperate until the nervous system has been worn out, or debilitated by a long continued use of alcohol without any intermission. If the system can be free from the irritation of the alcohol sufficiently long to recover from the over-excitement before another debauch, the nerves may never be so debilitated or taxed as to suffer from this disease, but when no remission is allowed, and when the potations are so frequent as to keep the constitution continually under its influence, the nerves become so weakened by the *continued* excitement as to lose their natural action, and we have the symptoms of this disease. It is probable that the alcohol really enters the circulation, and not being assimilated, but remaining alcohol still, produces this phrenzy so common with the intemperate.

The symptoms which mark a decided attack of *delirium tremens*, and which have sometimes been found so equivo-

cal, are very striking. You will be summoned to a man who is supposed to be mad, or to have brain fever. You find him with a red face, perhaps, injected eyes, talking wildly and incessantly, fidgeting with his hands, affected often with tremors of the limbs, having a rapid pulse, and bathed in sweat. Now it is very natural that a person not on his guard should look upon these symptoms as indicating inflammation within the head. But if you look closely into the matter, you will find in the state of the patient, and in his history, some things very peculiar. The delirium you will generally find to be, not a fierce or mischievous delirium, but a *busy* delirium: he does whatever you desire him to do, but he does it in a hurried manner, with a sort of anxiety to perform it properly. During the approach of the malady, while he is yet able to go about, he manifests great impatience of any interference, or advice, or assistance, in his ordinary duties, which he sets about in a bustling and blundering manner. His loquacity is extreme, and he refers to matters that are not present before him: he is not altogether inattentive to the objects and proceedings that are going on around him, but his mind wanders away to other subjects. There is an odd mixture of the real and the ideal in his thoughts and language. Sometimes he is very suspicious that those who are about him intend him some injury; or that he is surrounded by enemies. You will find also that he does not sleep; that he has not slept perhaps for several nights, but been restless and rambling; and you will generally learn that he has been habitually intemperate, or subject to some great source of care, or anxiety, or excitement: and in many cases he has recently been somehow or other debarred from his customary stimulus. In addition to these points in his history, you will frequently be told that having been unwell, first he has been kept on low diet, and then, as the delirium came on, he has been depleted by some means; and that he has been none the better, but commonly the worse for the bleeding. When you gather such particulars as these from his friends (for upon his own statements you cannot place any reliance,) and when you find the delirium to have the characters we have been attempting to describe, and especially when there has been obstinate watchfulness, and the tongue is moist, and the skin is sweating, you may be pretty certain that your patient is affected, not with inflammation of the brain, but with delirium tremens.

The tongue is moist and creamy; the pulse, though frequent, is soft; the skin is perspiring, and most commonly the patient is drenched in sweat. The sweat is usually described as having an

offensive or a peculiar smell; we cannot say that we have observed it to be so. The face also is said to be pale; but that we know, is not always the case, and therefore this point cannot be relied upon as a distinguishing circumstance.

Let me remind you, in a few words, of the peculiar characters of the delirium. If you question the patient about his disease, he answers quite to the purpose; describes, in an agitated manner, his feelings, puts out his tongue, and does whatever you bid him: but immediately afterwards he is wandering from the scene around him to some other that exists only in his imagination. Generally his thoughts appear to be distressful and anxious; he is giving orders that relate to his business to persons who are absent; or he is devising plans to escape from some imaginary enemy; he fancies that rats, mice, or other reptiles, are running over his bed, or that strangers are in his room. He looks suspiciously behind the curtain, or under his pillow, and he is perpetually wanting to get out of bed; but he is readily induced to lie down again. It is very seldom that he meditates harm, either to himself or to others: there is rather a mixture of cowardice and dread with the delirium.

Most writers on this subject, have adopted Dr. Blake's division of the disease into three stages—as being best calculated to obviate the obscurity and confusion in which its history was formerly involved, and to direct us to our mode of treatment. The first stage is characterized by general debility, anxiety of countenance, depression of spirits, a slow pulse (frequently as low as forty-four in a minute,) interrupted slumbers, cramp in the extremities, vertigo, nausea, and occasional vomiting. By timely and judicious treatment, its further progress may be arrested; and, by subsequent prudence on the part of the patient, its occurrence may be prevented. Generally, however, after a shorter or longer period—according to the constitution, age, and previous habits of the patient—it is succeeded by the second stage, or that of delirium; the symptoms of which have been already described. Either these symptoms increase in violence; and others (which very nearly resemble those of the last stage of typhus) supervening, the patient dies suddenly in a convulsion; or the long continued delirium—with subsultus tendinum, picking of the bed-cloths, etc., is succeeded by a short interval of quietude; and he expires without a struggle; or, after two or three days, or (it may be) a week, yawning and drowsiness come on, and are followed by sleep; which is generally profound and of long duration—lasting from six to

twelve or eighteen hours. The patient wakes collected, and greatly refreshed; and his recovery may be looked upon as almost ceriatn.

Treatment.—We have mentioned above among the causes of this disease, the use of opium, We shall therefore, be very far from recommending it to cure this complaint, although the frequent recommendation of it in the Old School books, and the universal use of it by all Allopathic physicians might give us authority for it; but we are sure it should never be used in this disease any more than in other affections. We have far better and more efficacious remedial agents.

The frequent failure of the opium practice in the New York Hospitals, has caused the physicians of those Institutions to almost dispense with it in this disease, or at least, to use it with a sparing hand. If they were acquainted with the efficiency of our Lobelia Emetic, they would seldom use the deadly narcotic for this, or any other malady.

The most happy results will follow the full and free use of our third preparation of Lobelia, viz: equal parts of the tinctures of Lobelia, Nervine and Cayenne. Let the system be brought fully under the influence of this remedy, and then followed by the vapor—warm or sponge bath, and this treatment followed up till the Delirium ceases. The head must be kept cool, and the bowels freely opened by *stimulating* enemas. This treatment energetically followed will cure all curable cases.

A recent writer (*M. Hall*) remarks, that "it becomes a serious question, whether any stimuli should be allowed" in delirium tremens. Our observation and reflection are—in the main—in favor of the negative; and the remark is applicable to the various excitant antispasmodics that are wholly trusted to by some, because the disease is characterized by tremors.

All these "antispasmodics—assafœtida, castor, spiritus ammonia fœtidus, etc., are, like capsicum, mere stimulants. They are not possessed of any specific power over the disease, and are never employed by the author, unless he is desirous of exciting a new nervous impression on the gustatory nerves, and on those distributed to the lining membrane of the stomach. The same may be said of the cold shower bath or *douche*. The shock or new impression, made by it, is at times salutary, but some discrimination is needed in regard to its application to those whose powers are greatly prostrated."

If Dr. Dunglison, who makes the above remarks, had known the

value of the Lobelia Inflata in this form of disease, he would not say that *our* antispasmodic was wanting in "specific power" in this disease.

Throughout the course of this disease, light nourishment, as arrowroot, sago and tapioca, with or without milk, and occasionally a little wine or brandy, may be allowed. Often, however, there is little or no appetite; but still the patient should be encouraged to take a moderate quantity of aliment. During the convalescence, it may be advisable to administer gentle tonics, as any of the bitter infusions, with the view of restoring the tone of the stomach.

Dr. Condie says: Four different plans of treatment have been recommended, and the results of their extensive employment for a series of years, have been adduced, by their respective advocates, in evidence of the superior efficacy of each. One practitioner cures all or nearly all his cases by repeated emetics, another, by the free exhibition of alcoholic drinks, and a third, by opiates in free doses, continued at short intervals, until sleep is procured—while a fourth considers that neither excitants proper nor opiates are necessary, but simply a state of tranquility in a quiet and darkened chamber—with perhaps an emetic to unload the stomach in the commencement of the attack, and some gentle cathartic to keep the bowels open—and when the stomach will retain it, a light, nutritious, and easily digested diet.

Violence should not be used in restraining the patient unless it is absolutely necessary, and if the Lobelia is used as freely as it ought to be, both by the mouth and per anum, there will be little need of any restraint.

We have invariably observed more benefit derived from the use of emetics than from any other means. Sometimes mania a potu is observed to terminate by spontaneous vomiting. Merely evacuating the stomach is not sufficient, however, except in cases of a very mild character: the mucous membrane is in most instances thickly coated with morbid secretions, which require the continued use of stimulating and anti-canker medicine for two or three days, besides frequent vomiting, before the stomach will become cleansed of morbid secretions, and its power of digestion be restored. The third preparation of lobelia is the best form, yet it may be taken either in powder, infusion, or in tincture, given in sumac or bayberry tea. After the operation of an emetic, if the symptoms be not very much relieved, a tea-cup half-full of a strong decoction of bayberry or sumac, adding from a teaspoonful

to a tablespoonful of the liquid of the third preparation of lobelia, must be given every hour or two, as the patient can be persuaded to take it: this supplies the place of all other medicines. Sometimes it requires considerable management to induce the patient to take medicine. Some will take medicine in the form of pills; and in such cases the compound lobelia pills may be employed, as a general medicine, until the disease is overcome. If given freely, say from three to five pills every hour, they will effect free vomiting, and supply the place of the usual form of emetic previously mentioned.

During the act of vomiting, if the face be swollen and the vessels turgid with blood, the patient's head should not be allowed to be lower than the level of his body; for the action of the blood-vessels of the brain being weakened, the blood circulates sluggishly through them. This requires that the head be kept somewhat elevated, in order to favor the returning circulation. When the skin and extremities are cold, an injection should be administered, and also a vapor bath, before giving an emetic. If these cannot be accomplished in consequence of the strenuous opposition of the patient, still the lobelia should be given in some form. If injections can be given, the lobelia powder may be administered in this way in lukewarm water, which, if retained, will occasion vomiting, and exert even a more beneficial influence upon the system than when taken into the stomach.

CEREBRO-SPINAL MENINGITIS—SPINAL IRRITATION.

Description and Causes.—Having described those forms of disease incident to the increased vascular excitement of the brain, we now proceed to affections of the spinal cord.

The whole pathology of this portion of the nervous system is extremely interesting; but it has not yet been so thoroughly made out as to enable any one to give a very systematic or satisfactory account of it. In addition to those numerous difficulties with which the entire subject of the diseases of the nervous apparatus is beset, there is this further obstacle to our studying diligently the structural changes of the spinal marrow—that much labor and expense of time are required for exposing the interior of the vertebral canal; which is, therefore, too often neglected in examining the dead body.

There are certain points in the anatomy and physiology of the spinal cord which it is necessary that we should bear in mind, if we would have any clear notions even of what has been learned in respect to its pathology.

1. In the first place, the spinal cord (including the medulla oblongata) is the seat and centre of that remarkable property, the reflex function; by which so many of the automatic movements of the body are regulated.

2. In order that we may feel, or be conscious of, what occurs in any part of the trunk or limbs, and in order that our will to move any such part should be obeyed, it is necessary that there should be a continuity of nervous matter between the part in question and the brain. If the cord be cut across at any point, or so crushed as to be thoroughly disorganized at that point, a complete abolition of sensation and of *voluntary* motion ensues in all those parts of the body that receive their sentient and motor nerves from that portion of the cord which lies beyond the place of the injury, reckoning from the brain. What is true in this respect of the mechanical division of the cord, is equally true of such disease that pervades and spoils the nervous matter composing it.

Now it follows from this, that the effects of disorganizing forms of disease—as well as the effects of injury—must vary greatly according to the part of the cord they occupy.

Thus an injury or disease affecting the whole thickness of that portion of the spinal marrow which is contained within the upper cervical vertebræ, is inevitably fatal at once; producing suffocation by paralyzing those muscles through the play of which the muscles and the diaphragm have at all times the main share in carrying on the mechanical actions of respiration; and probably they execute the whole action in every case of ordinary breathing. Now the increased muscles are furnished with motor nerves from the spinal cord, all along the dorsal vertebræ; and the diaphragm is principally supplied by the phrenic nerves, which are chiefly derived from the third and fourth cervical nerves. These muscles obey the will; but they act also independently of the will. The pneumogastric and trifacial nerves, with respect to them, are excito-motory nerves, and call into play a reflex power which is transmitted from the medulla oblongata. Hence any profound injury of the spinal cord, above the origin of the phrenic nerves, stops both the voluntary and the involuntary movements of the respiratory muscles, and the individual perishes by apnœa, in as strict a sense as though the access of air to the lungs had been

suddenly prevented by a ligature drawn tightly round his windpipe.

Again, when a segment of the cord, however small, is disorganized in its cervical part, between the origin of the phrenic and the origin of the upper intercostal nerves, the breathing is not instantly suspended; but is performed entirely by means of the diaphragm, the intercostal muscles having no share in it. The ribs cease to rise and we suppose the disease of the cord to be such as suffices to paralyze the parts supplied with nerves from it, beyond the seat of the disease. If disease of this kind occur, *paraplegia* only, palsy and loss of feeling in the lower extremities, and, perhaps, in the hips, will result. Now a person in this condition *may* live a long time. When the disease is situated between the origin of the intercostal nerves and the origin of the phrenic, he may live a few days, but he seldom lives a week, and never survives a month: and when the disease is higher still, in the very upper part of the cord, above the origin of the cervical nerves, he perishes outright. The *kind* and *degree* of disease, therefore, being the same, the character of the symptoms, and the amount of danger, differ remarkably according to the *seat* of the disease.

3. Although sense and voluntary motion cease upon the disruption of the communication with the brain, the excito-motory functions of the separated portion of the cord are not necessarily suspended. On the contrary, they seem to acquire increased activity. The automatic power is apt to run riot, as it were, when the controlling influence of the sensorium is withdrawn.

4. Distinct and different filaments of the spinal cord connect themselves with, or help to form, different nerves which emerge from the cranio spinal axis. A knowledge of this fact enables us to understand how it happens (as it sometimes does happen,) that the upper extremities are bereft of sensibility, or of voluntary motion, or of both, by disease of the cord, while the same functions remain perfect in the lower and most distant limbs. Here the disease must have spared those strands or filaments of the cords which pass down to connect themselves with the nerves given off at the lower part of the spine; while it has affected those strands or filaments only which belong to certain nerves from the upper part.

6. You must bear in mind also the grand discovery of Sir Charles Bell, that the two roots by which each spinal nerve arises

have distinct and different functions; the anterior roots being composed of motor fibrils, the posterior of sensiferous.

7. We must not forget that the brain, and the spinal cord, which are distinct from but yet continuous with each other, sympathize largely and mutually under disease. This circumstance throws an additional obscurity over the study of their morbid conditions. It is one, however, which we cannot avoid, but which we must estimate and allow for, in our observation of diseases, as we best may.

8. There are a few remarks made by Dr. Abercrombie in relation to some of the anatomical dispositions of the cord and its investing membranes, which may help us to comprehend better some of their morbid contingencies. Thus, with respect to the dura mater of the cord, it is practically of importance to recollect "that it adheres very slightly to the canal of the vertebræ by a very loose cellular texture; and that it adheres very intimately to the margin of the foramen magnum. In this manner a cavity is produced betwixt the membrane and the inner surface of the spinal canal (external, *i. e.*, to the membrane,) which cavity may be the seat of effusion, and which has no communication with the cavity of the cranium. On the other hand, the space between the dura mater and the pia mater, (or membrane immediately covering the cord,) communicates freely with the cavity of the cranium; so that fluid may pass easily from one to the other, according to the position of the body."

The causes of inflammation of the spine are (principally) blows or falls, violent muscular efforts, and exposure to damp or cold. One patient became affected with acute spinal myelitis, from being long exposed to the rain and cold in an open boat. This affection has frequently occurred from the pernicious custom of lying upon damp grass. Rheumatism seems occasionally to have led to this disease. The observations of M. Louis have distinctly shown the connection between caries of the vertebræ and spinal myelitis.

The causes of spinal meningitis are not always to be discovered. It sometimes extends from within the cranium. It may be excited by external violence to the spine, of which a good specimen has been recorded by Sir Charles Bell. A wagoner sitting on the shafts of his cart, was thrown off by a sudden jerk, and pitched upon the back of his neck and shoulders. He was taken to Middlesex Hospital, where he lay for a week, without complaining of any thing except stiffness of the back part of the neck. He

could move all his limbs with freedom. On the eighth day after his admission he was seized with general convulsions and locked jaw. He then became affected with a singular convulsive motion of the jaw, which continued in violent and incessant movement for about five minutes. This was followed by maniacal delirium. He then sank into a state resembling typhus fever; and after four days was found to be palsied and insensible in his lower extremities. The day before his death he recovered sensation in his legs.

We must also mention Female obstructions and the accidents of pregnancy and parturition.

Diagnosis.—The spinal marrow, being constituted of columns or tracts for motion and sensation, but not for the higher functions of intellectuality, delirium or perversion of the mental powers is not to be expected. Disorders in the movements are the most striking phenomena, especially when the inflammation attacks the anterior or motor tract of the medulla. In these cases, the effects upon the muscles are most varied;—spasms or permanent contractions, sometimes of one, at others, of many muscles, with or without paralysis in the parts, which receive their nerves either from the affected portion of the marrow, or from below it. We had recently under our charge, a female laboring under chronic inflamation of the base of the brain, and probably also of the anterior portion of the medulla. The symptoms, in the first instance, were those of encephalitis—more especially of the left side of the base of the brain; this was accompanied by hemiplegia of the right side: subsequently, the affection of the brain passed over to the right side, and partial hemiplegia of the left side supervened: the spasms and contractions of different muscles were, in this case, marked and distressing. It presented in addition, all the phenomena that belong to encephalic myelitis. It has been conceived, that when the inflamation is seated in the meninges of the marrow, constituting *spinal meningitis* or *meningeal myelitis*, the symptoms will be more those of irritation of the spinal marrow or of spasm; whilst myelitis proper, or inflammation of the medulla, will be indicated more by symptoms of destruction of the medulla or paralysis, but the distinction—if it exist at all—is not easily made, and we have not observations enough for the differential diagnosis.

When the posterior tract of the spinal marrow is inflamed, we should expect to find disorders of sensation to be the prominent phenomena. Pain is generally experienced in some portion of

the spinal column, which is augmented when the patient moves, or bends the spine, or by percussion: the jar, communicated in this way, is appreciated, but no pressure along the spinous processes can probably aid us in the diagnosis—as well might we press upon the cranium to discover whether the brain be affected with inflammation.

The pain sometimes extends down the back and the extremities, following the course of the great nervous trunks, and, as in other affections of the nervous structure, it may be continued or intermittent: it is often presumed to be rheumatic or neuralgic, and rheumatic and neuralgic pains are doubtless frequently attributed, most erroneously, to inflammation of the medulla.

At other times, sensation is destroyed in the parts that receive their nerves from the inflamed portion of the medulla, or it may be impaired in the first instance, as indicated by numbness and formication in the fingers or other portion of the extremities; and these symptoms may go on augmenting, until ultimately there is total insensibility.

The nutritive functions are also disordered in myelitis. At times, there is difficulty in deglutition, the reflux function being affected in the part of the medulla laboring under inflammation, and this may be one of the first evidences of myelitis.

It rarely happens, that the digestive operations are not retarded; and, accordingly, constipation is a common concomitant.

Where the disease is very active, the circulation is greatly affected, as in other acute phlegmasiæ: but myelitis may exist to a limited extent, and yet the pulse aid little, if at all, in the diagnosis. Commonly, where the upper portion of the medulla is the seat of the inflammation, the respiratory function is disordered; inspiration becomes difficult, or almost impracticable; the diaphragm contracts irregularly and spasmodically, so that the patient is distressed with constant hiccup, and, in this way, asphyxia may be gradually induced.

Where the mischief is seated lower down, and especially if it be chronic, the urinary and genital organs lose their power, so that retention of urine and impotence result. At other times, it is affirmed, the genital organs are greatly excited, with tendency to priapism—facts, which, as has been remarked, confirm certain experiments of physiologists, in which the same effects were induced by mechanically irritating certain portions of the spinal marrow.

In the pregnant female, there is, at times, inertia of the uterus;

whilst, at others, the uterus has contracted well upon its contents, and delivery has been easily accomplished.

After all, it must be admitted, that the diagnosis of myelitis is not easy. The chronic form especially may be confounded with neuralgia, hysteria, and the various phenomena that have been classed by some writers under the head of Spinal Irritation. It fortunately, however, happens, that the revulsive treatment is equally well adapted for all those cases.

The duration of the disease is variable, from a few days to weeks and months; if it be to a slight extent, it may terminate favorably, and commonly does so; but, when violent, the disease is apt to extend to the brain, and to destroy. At other times, as already remarked, it induces asphyxia. In the chronic form, the whole system of nutrition may become impaired, so that the patient falls into a state of atrophy under which he is gradually worn out.

Treatment.—The treatment for this form of disease in the Old School practice, is barbarous in the extreme. Subject a perfectly well person to the authorized treatment of Allopathy, for spinal disease, and not one in fifty would live. Almost all we find for this disease, in the old authors, consists in blood-letting from the arm, the jugular vein, and temporal artery, leeches and cups to the neck and along the spine—ice to the head—sinapisms, blisters and stimulating frictions, cauterizing by red hot irons along the spinal column, purgatives, calomel, mercureal frictions, and opium. The above list of barbarities we quote seriatim from one of the latest and best Old School authors. Shades of Paracelsus and Galen!! to what unheard of cruelties have you led your followers! Who would believe that this long list of barbarities would be tolerated in this enlightened day, and yet we have seen many poor patients who have gone through *all* the above *curative* agencies during a treatment of years for spinal irritation, and we have cured some of them in a few weeks after they had suffered such a course. We will now tell our readers how to do it:

When the Diagnosis of this complaint is well made out and the cause ascertained, and efforts made to remove that as much as possible, then let stimulating liniments be freely applied to the whole spine, and for this liniment, the following is an excellent formula:

R.—Tinct. Lobel. inf., (Lobelia,) drachm,		3
" Camphora, (Camphor,)	"	3
" Capsicum, (Cayenne,)	"	3

Add one teaspoonful of the oils of Cedar, Juniper and Turpentine, or the Sassafras and Wormwood. This must be applied with as much friction as the patient can bear without pain. If this should not produce severe smarting, let cloths be wrung from hot water and applied to the spine. The warm sitz bath or vapor bath should be used twice a week on going to bed at night. The discharges from the bowels are to be regulated by stimulating enemas, rather than by cathartic medicines.

Lobelia Emetics are always indicated, and the Spice Bitters as a tonic, or the Female Restorative Bitters.

Where the strength of the patient is not too much reduced we shall find the cold or tepid douche to be very beneficial. While the weakness and debility are great, and the patient unable to stand upon the feet without pain, a recumbent position should be enjoined for the most part, and the diet suited to the constitution and circumstances of the case.

When there is so much weakness as to confine the patient to the bed altogether, the hydrostatic or waterbed should be procured if possible.

Dr. I. J. Sperry, of Connecticut, has recommended the following as good treatment in this disease:

What has been said respecting the disease of the substance of the spinal cord, will apply in this form of disease equally well as in the other. All causes must be removed, so that they cease to operate; the system thoroughly cleansed; stimulants and tonics given to produce healthy action, or aid nature in regaining a healthy tone; and local remedies applied to the affected parts, as above described. The hip bath is excellent in vitiated or suppressed menstruation, and the female powders or woman's friend, is not excelled as a tonic, in all local weaknesses of females.

The following Stimulating Plaster will be found valuable:

Pod. pel., (Mandrake,) San. can., (Blood Root,) Phytolac dec. (Poke Root,) Arum triphyllum, (Indian Turnip,) equal parts, finely pulverized and mixed with tar, boiling the latter one-half hour before adding the powders thus made for a plaster; spread it on soft leather. This applied over the seat of pain or along the spine and worn for some weeks will keep up the necessary action to the surface, as well as strengthen the back.

Warm pediluvia and rubifacients to the feet and ankles will be desirable. The surface of the body must be often sponged, and stimulating and relaxing enemas often administered, and the emet-

ic given to cleanse the stomach, from once to three times per week, while the worst symptoms are present.

The above treatment perseveringly carried out, and the habits and diet of the patient attended to, will cure a large majority of those cases which have been previously treated by Allopathic physicians as indicated above.

APOPLEXIA—APOPLEXY.

Description and Causes.—Apoplexy may be defined, a sudden loss or suspension of the animal functions, with a slow and full pulse, laborious breathing, generally attended with stertor; whilst the organic or vital functions continue with little or no perceptible disturbance.

It was formerly supposed that Apoplexy from the rupture of a vessel, and extravasation of blood into the substance of the brain, is always necessarily fatal. This opinion has, however, been satisfactorily controverted by the experience of many of the ablest pathologists of the present day. The observations and dissections of Roibe, Rochoux, Cruvelhier, Bricheteau, and Serres; and we may add, of Baillie and Sir Astley Cooper, place the occasional recovery from strong Apoplexy beyond all doubt. From the numerous dissections made in the Parisian hospitals by the French pathologists just mentioned, we learn, that when sanguineous extravasation into the substance of the brain does not soon terminate in death, a membranous, vascular structure is formed around the coagulum, and that coagulum is afterwards absorbed by the vessels of this membrane or cyst. In the progress of time, this cyst itself becomes absorbed, and leaves a yellowish cicatrix, or laminated, cellular structure, which in some instances is found to contain a small portion of reddish serum.

Sir Astley Cooper thinks, that in Apoplexy from sanguineous extravasation, the blood never becomes absorbed, but that the brain gradually acquires the power of bearing its pressure, and that thus the general symptoms which are produced at the first moments of extravasation gradually diminish. That the brain is capable of accommodating itself in some degree to unnatural pressure from extravasation, or other causes, cannot be doubted. I knew an instance of considerable depression of a small portion of the superior and lateral part of the os frontis from a fall. The

child remained in a state of apoplectic insensibility for about twelve hours, and very gradually recovered a state of perfect consciousness in about three days. The depression still continues, and, with the exception of occasional headache, no inconvenience appears to remain from the accident. The numerous and well attested facts that have been brought to light by the authorities already mentioned, are nevertheless sufficient testimony to establish the truth of the occasional absorption of sanguineous effusions in the brain. Bricheteau and Riobe have reported numerous dissections, all proving, not only the reabsorption of the effused fluid, but a reunion of the lacerated surfaces afterwards by a kind of cicatrisation.

A variety of circumstances, both in relation to the constitutional habits of individuals, and extraneous influences, appear to predispose to this affection. Of these predisposing causes, the following are the principal:

1. *A peculiar conformation of the body;* consisting in a large head; thick short neck; broad shoulders; ample chest; florid, and full face; short stature; globular abdomen, with a tendency to plethora and obesity. Such individuals are often subject to hæmorrhage from the nose, as well as to sensation of weight and fullness in the head, particularly on stooping, or making strong corporeal exertions. When they sleep with the head lying low, they are restless, disturbed with dreams, and the respiration is heavy and sonorous. Such a corporeal structure constitutes, no doubt, in many instances, the hereditary predisposition to this disease, noticed occasionally in particular families. It is to be presumed also that a peculiar condition of the intimate organization may, in some cases, establish a constitutional tendency to inordinate determinations to the head, and to the consequent occurrence to apoplexy and other cerebral affections.

2. *Age.*—The observation of Hipocrates, that Apoplexy occurs chiefly between the fortieth and sixtieth years of age, still holds good at the present day. Instances of apoplexy occur indeed at a much earlier period of life, particularly between the thirtieth and fortieth years; but in a general estimate it will be found that a very large majority of cases happen after the age of forty.—Rochoux states, that out of sixty-three cases of this disease, two occurred between the ages of twenty and thirty—eight between thirty and forty—seven between forty and fifty—ten between fifty and sixty—twenty between sixty and seventy—twenty-three between seventy and eighty—and one between eighty and

ninety years of age. It would appear from this statement, that apoplexies occur more frequently *after* the age of sixty than at any previous period; and this corresponds with the sentiments of Cullen and Portal. The greater liability to Apoplexy at an advanced period of life, cannot be referred to a mere increased tendency to a preternatural determination of blood to the head; for in infancy this tendency is acknowledged to be generally greater than at any subsequent period of life; and yet Apoplexy at this early age is an extremely rare occurrence. Some other circumstances, therefore, connected with advanced age, must be the cause of this greater aptitude to the disease. Many pathologists have ascribed this increased tendency to Apoplexy in old people, to an ossified state of the cerebral vessels; but this opinion is not verified by post mortem examinations. Others, with more plausibility, have supposed that it may depend on a weakened state of these vessels, similar to that morbid condition of the arterial coats which favors the occurrence of aneurism. It is probable, however, that this predisposition depends on various circumstances of a general character connected with old age, independent of a morbid condition of the cerebral vessels.

3. *Whatever tends to produce general plethora*, or to keep up a preternatural determination of blood to the brain, increases the liability to Apoplexy. A full and nourishing diet; the habitual use of stimulating drinks, particularly in connection with an inactive and sedentary course of life, are especially calculated to increase the predisposition to this disease. Immoderate venereal indulgences at an advanced age; frequent, and long continued warm bathing; a sudden change from an active or laborious to a quiet or indolent course of life; intense and protracted study; and the free use of strong coffee, are mentioned among the predisposing causes of this disease.

4. Various organic affections, such as aneurism of the aorta; hypertrophy of the heart; visceral indurations; and tumors about the neck, increase the liability to Apoplexy.

The exciting causes of Apoplexy are very numerous. In general, whatever produces inordinate determinations of blood to the head, or impedes its free return from the brain to the heart, may give rise to this disease.

Over-distension of the stomach by immoderate eating, more especially if the ingesta are stimulating and of difficult digestion, and the digestive powers weak, is one of the most common and powerful exciting causes of Apoplexy. The intemperate use of

spirituous liquors, violent exertions in lifting, much straining in evacuating the fæces, strong fits of coughing, sneezing, and great exertions in declaiming, playing on wind instruments, singing, laughing, or speaking, by causing sudden and strong determinations of blood to the head, may produce this disease in individuals predisposed to it. Exposure to the direct rays of the sun in warm climates, give rise to that sudden and fatal affection called *stroke of the sun*, and which is generally regarded as Apoplexy. Extreme cold also is capable of producing this affection, by diminishing the circulation in the external vessels, and causing strong internal congestions. Violent and sudden mental excitement, rage, excessive joy, terror, and deep sorrow, have been known to produce this disease. The suppression of habitual discharges, whether sanguineous or serous, may give rise to Apoplexy. This is particularly the case with habitual hæmorrhoidal discharges or epistaxis in plethoric subjects. The healing up of old ulcers has a tendency also to produce this disease in persons otherwise predisposed to it. Stoll mentions the sudden disappearance of œdema of the feet as an exciting cause of Apoplexy. Women in the puerperal state, are in some degree liable to Apoplexy. Dr. Davis, of London, states that he has met with four or five Apoplectic seizures and consequent hemiplegia, in puerperal women.—Tumors or visceral indurations in the abdomen, by pressing on the aorta, may give rise to this disease. Morgagni relates an instance which was produced apparently by an enlarged spleen pressing on the aorta.

Apoplexy may also occur in consequence of the repulsion of chronic cutaneous diseases; and it is frequently the result of metastasis of gout. Authors mention also translations of rheumatism, erysipelas, and of other exanthematous affections among the exciting causes of this disease. We knew an instance in which it appeared to be brought on by a very severe attack of mumps. Violent rigors or chills, particularly the severe and protracted chills of intermittents, sometimes give rise to Apoplexy. We have known several fatal instances of this kind. In one case, we stood by the patient when he was seized with the chills; in about ten minutes after they commenced he became insensible; fell into convulsions, and quickly passed into a profound apoplectic stupor, from which he did not recover. The patient was an old, corpulent, and very plethoric man. Intestinal irritation may also cause so strong a determination of blood to the brain as to give rise to this affection.

Besides the foregoing causes, which operate apparently by causing undue determinations to the vessels of the brain, Apoplexy may also be produced by causes that impede the free return of the venous blood from the head to the heart. Stooping, or other situations in which the head remains in a depending position; wearing tight cravats, and turning the head round to look back, by which the jugular veins are in some degree compressed; impeded circulation through the lungs; *organic diseases of the heart;* tumors on the neck, or in situations where they may press upon the veins which convey the blood from the head, are the principal of these causes.

Authors mention also excessive evacuations among the occasional causes of this disease. Boerhaave states, that he knew an instance of Apoplexy apparently produced by an excessive hæmorrhage from the nose. The tendency of excessive sanguineous evacuations to produce soporose or cerebal oppression very similar to Apoplexy, has already been adverted to under the general head of hæmorrhages. The work of Marshall Hall, referred to in that place, gives some very interesting observations on this subject. It is certainly a very remarkable circumstance, and not accordant with the present received pathology of Apoplexy, that entire insensibility, with stertorous breathing, sometimes results from profuse hæmorrhage. Diabetes sometimes terminates fatally, under symptoms strongly resembling Apoplexy; and the same termination has been noticed in excessive diarrhœa and cholera. Peculiar atmospheric constitutions have also been ranked among the exciting causes of Apoplexy; and from causes of this kind, this disease has at times prevailed epidemically. Besides the authorities referred to below, we have also the more recent testimony of Weikard, and of Jahn, in confirmation of this fact; and Baglivi mentions the epidemic occurrence of this affection. Richter states, that a humid, cold, and variable state of the atmosphere, appears to be most favorable to the occurrence of Apoplexy. It is not improbable, however, that such a condition of the atmosphere depends more upon its electrical and barometrical state, than on its relative degrees of humidity and temperature. This atmospheric tendency to produce or favor the production of Apoplexy, is sometimes limited to a few days of continuance. Thus Thilenius states, that in the course of a few days, nine persons were seized with Apoplexy in one district.

Various organic affections of the brain and its meninges, and the narcotic poisons, are also enumerated among the exciting cau-

ses of this disease. Gregory doubts whether these latter can, with propriety, be considered as exciting causes of Apoplexy. As they tend, however, to cause strong congestion in the vessels of the brain, they may, no doubt, excite this affection in persons otherwise predisposed to it, as other causes do, that strongly determine the circulation to the head.

What is the immediate cause of the abolition of sensorial power and voluntary motion in Apoplexy? Pathologists are far from being unanimous in their answers to this question. Some maintain, that pressure on the cerebral mass is always the immediate cause of the characteristic phenomena of this disease; others suppose that they depend not on pressure, but simply upon interrupted circulation in the brain; whilst some believe that the encephalic effusions are the consequence of a previous morbid change in the brain, upon which the loss of sense and motion depends. Some pathologists confine the term Apoplexy strictly to sanguineous extravasation within the brain; others include *serous* effusions among the immediate causes of the disease; and many believe, and correctly too, that mere vascular turgescence, without effusions of any kind, frequently produces Apoplexy.

From a careful examination of everything that has been written on this subject, it appears clear, that the opinion which assigns the characteristic phenomena of Apoplexy to *pressure* of the brain, is the correct doctrine on this point.

Post mortem examination detects in those who die of Apoplexy one or more of the following phenomena:—1, vascular turgescence of the brain; 2, sanguineous extravasation into the substance of the brain; 3, serum effused into the ventricles or upon the surface of the brain; and 4, no consignable cerebral disorder whatever. Of these four conditions, the first only ought, we think to be considered as primary or essential; the others being consecutive, and not immediately concerned as a cause in the apoplectic seizure.

When blood flows more rapidly into the arteries of the brain than it can be returned by the veins, preternatural distension of the cerebral vessels must be the consequence; and this general vascular turgescence must exert an unusual degree of *pressure* on the cerebral mass.

Vascular engorgement and consequent pressure on the brain is capable of producing all the peculiar symptoms of Apoplexy, since the vessels of the brain are found so much engorged with blood, as to render even the smallest branches very conspic-

nous, and to give a more or less deep red tint to certain portions of the cerebral mass without any sanguineous or serous effusions.—Richter says that an extremely congested state of the cerebral vessels is sometimes the only morbid condition visible within the head. Bricheteau also observes, "that we often find a general turgescence of the cerebral vessels, which congestion causes a general pressure on the encephalic mass, sufficient to extinguish the nervous influence, and destroy life." Morgagni has related a case in which he found, on dissection, the whole vascular system of the brain extremely engorged with fluid blood. Dr. James Johnson, in commenting on this case, observes—"that Apoplexy is frequently produced by *turgescence* of the vessels alone, was believed in ancient times as well as in modern. It is, indeed, reasonable to suppose, that in the majority of apoplectic recoveries, *congestion* only had taken place in the vessels of the brain. But if congestion gives rise to the most favorable cases, it appears capable of producing the most desperate and instantaneously fatal ones also." Dr. Fouquier also, has reported a case of fatal Apoplexy, which was manifestly the result of mere sanguineous engorgement of the brain. "The exterior vessels of the brain and those of the choroid plexus were much engorged with blood; and the interior of the cerebral mass, when sliced off, presented a multitude of red points. Neither serous nor sanguineous effusions were present.

Strong and sudden sanguineous engorgment of the cerebral vessels is, probably, *always* one of the first morbid conditions in the occurrence of Apoplexy—the immediate result of diminished vital resistance in the vessels of the brain, and the preternatural afflux of blood to these vessels. This vascular turgescence may pass off again under proper remediate measures; or it may terminate speedily in sanguineous extravasation into the brain; or continue, finally, without any effusions, until it terminates the patients life. What is usually termed *serous Apoplexy* is perhaps only one of the terminations of Apoplexy from vascular turgescence.—A sudden, violent determination of blood to the brain, and consequent cerebral compression, may immediately destroy all sense and voluntary motion. If the vessels be not relieved by extravasation or by immediate applications, they may, in the course of some hours, relieve themselves by *serous effusion*, as they do in acute hydrocephalus; and this effusion must then become a secondary but permanent cause of cerebral compression. It is unnecessary here to adduce any arguments in support of this pathology of

serous Apoplexy. We often meet with striking examples of sudden serous or lymphatic effusions from vascular engorgement.—Every one has heard of the affection usually called Apoplexy of the lungs. Sudden, and often fatal, effusions of this kind occur into the substance of the lungs from violent engorgement of its blood-vessels.

It appears highly probable, therefore, that strong *vascular turgescence* of the encephalic mass, constitutes the primary pathological condition of Apoplexy. This state often terminates almost immediately in sanguineous extravasation, or at a later period in serous effusion; and both these consequences constitute, of course, additional causes of cerebral compression.

To this view of the pathology of Apoplexy, it has been objected, that cases sometimes occur in which the brain on dissection exhibits no traces whatever of vascular congestion, nor any other obvious lesions. Petzold has related instances of this kind, which he ascribes to *inanition of the cerebral vessels*, and in which not the slightest unnatural appearances were discovered on dissection, except an empty and collapsed state of the vessels of the brain. Such cases are, however, extremely uncommon; and do not, upon proper inquiry, militate against the doctrine advocated above. Upon this point, Dr. Johnson observes, "that there is nothing more certain than that the vascular turgescence in the brain may so far subside, in the interval between death and dissection, as to leave no trace of its previous existence. This, in fact," he continues, "we consider to be the natural and true solution of the difficulty respecting the cause of Apoplexy in those cases where the scalpel cannot detect deviations from the healthy structure."—There is, however, another objection that has been urged against the doctrine of cerebral compression as the exclusive cause of Apoplexy, which, though plausible, possesses no real weight. It is stated, and correctly, that all the external manifestations of strong Apoplexy are sometimes the immediate result of excessive hemorrhage. Dr. Denman has also related an instance of apoplectic symptoms supervening on very profuse hemorrhage, and many more cases of this kind might be collected. In relation to such cases it is to be observed, that great losses of blood are peculiarly favorable to extraordinary determinations to the brain, or as Marshall Hall expresses it, "to increased action and fulness of the cerebral vessels." The experiments of Kellie on animals show that serous effusion within the head, is a pretty constant concomitant

or consequence of excessive sanguineous depletion ; and the experiments of Dr. Seeds go to establish the same fact.

Out of forty-one dissections, Rochoux met with but five or six instances of extravasation in other parts of the brain : and the observations of Morgagni give nearly the same result. Extravasation of blood into the cerebellum is an extremely rare occurrence. According to Rochoux it hardly happens once in fifty cases ; and Morgagni reports only one instance of this kind. "Blood is rarely effused, *in the first instance*, into the ventricles. During ten years' observation in the different hospitals, M. Bricheteau saw only two cases of this kind. The fluid is generally extravasated in the neighborhood of the ventricles, and bursts into them by a ragged opening." Occasionally blood has been found effused on the surface of the brain. Rochoux relates a case of this kind; and Richter states that sometimes the brain, on removing the cranium, appears dark, brown, or blackish, through the membranes, from extravasated blood underneath. The old division of Apoplexy into *sanguineous* and *serous*, possesses no importance in a practical point of view. We have already stated that the effused serum sometimes found within the head on dissection, is very probably not the immediate cause of the apoplectic seizure, but one of the results of the vascular engorgment, upon which the Apoplexy depends. There are, nevertheless, some circumstances connected with this distinction which it may be proper to notice. Thus, it appears, from the observations of M. Serres, that when the apoplectic attack is complicated with hemiplegia, we may infer that there is extravasation of blood into the cerebral substance. When, on the other hand, the disease is accompanied with paralysis, we may presume that the substance of the brain remains uninjured, and that more or less serum, or sero-sanguineous fluid, is effused by the congested and irritated meninges upon the surface, or into the natural cavities of the brain. The former variety—that is the complicated or paralytic form of the diseases—M. Serres calls *cerebral Apoplexy*, from the cerebral mass itself being the principal seat of the morbid changes. The latter, or uncomplicated variety, he denominates *meningeal apoplexy*, on account of the manifest traces of vascular irritation and congestion, discovered by dissection, in the meninges. It appears from the observations made in the Parisian hospitals, that meningeal or serous Apoplexy occurs chiefly before the fifteenth and after the sixtieth year of age ; and that females are more liable to this variety of the disease than males.

Manner in which these Causes Act.—Many of these causes act by merely giving rise to excessive fulness; and if there happen to be, in the individual who is exposed to these predisposing causes, any organic disease of the vessels or membranes of the brain, it is easy to perceive how easily the excessive load of blood there, may occasion apoplexy. When there is organic disease of the vessels, of course, it does not require a full habit, full living, a short head, and a thick neck, to induce the disease. If any of the vessels be diseased, though a person be as thin as a lamp-post, and nearly as tall, he will be liable to apoplexy; and people wonder that a person so spare, should die of such a disease. It is so frequently the result of blood being effused through the state of the vessels, that we must expect to see this disease in thin people—not so often as in fat persons, certainly; but very frequently. It may arise without any fullness of the vessels whatever; but simply from one vessel, or a set of vessels, being brittle, or softened, or ulcerated, or laboring under some other disease; and it will arise from mere fulness of the vessels—the vessels themselves being sound, but suffering more or less congestion. We may, therefore, expect apoplexy in two very opposite descriptions of people; and when it arises from the state of the vessels, none of these other predisposing causes are required. A person may live the most abstemious life possible; and yet the vessels may let out the blood, and the person die apoplectic; so that no exciting cause may be required for it; nor any of those predisposing causes which we have mentioned, as operating by occasional fullness of the head.

In some instances, the apoplectic attack comes on suddenly without any precursory indications of its approach. Occasionally, indeed, patients feel unusually well for some time previous to an attack of the affection, and this is most apt to be the case in individuals of a gouty habit. Much more frequently, however, various premonitory symptoms, indicative of cerebral disturbance, precede the attack; and amongst these, the following are the most common: vertigo; a dull and deep-seated pain, or sense of weight in the head, particularly on stooping or suddenly turning the head round; a turgid state of the veins of the head; throbbing of the temporal arteries; ringing in the ears; inability to articulate distinctly; dimness of sight; transient obtuseness of hearing; sparks and flashes of light before the eyes; bleeding of the nose; drowsiness; confusion of ideas, manifested by incoherent talking; disturbed and heavy sleep; loss or unusual weakness of the memory; general sluggishness, both of body and mind; irregular spasmodic

contraction of the muscles of the face; and, occasionally, transient pains in the pit of the stomach, and nausea. In some instances, a numbness is felt in the fingers or in one side of the body shortly before the attack supervenes. In general, the symptoms which announce the approach of an apoplectic attack, indicate an unusual determination of blood to the head. These symptoms, however, vertigo, ringing in the ears, dimness of sight, and pain and heaviness in the head, are by far the most common precursors of an attack of this disease.

The duration of these symptoms is extremely various. In some cases, they do not continue more than a few hours before the attack ensues; in others, they occur with occasional remissions or intermissions, for several weeks or months, and even years. Occasionally, the most alarming of the foregoing symptoms occur and continue for a longer or shorter time, without terminating in an attack of the disease. The premonitory symptoms often become considerably aggravated immediately before the apoplectic attack supervenes. The fullness, weight, and pain in the head, become suddenly very severe; a sense of tension and drawing is felt in the muscles of the back of the neck; and in some instances, pain in the epigastrium, with nausea, occurs just before the attack.

In some cases the apoplectic attack comes on by a *sudden* deprivation of all sensorial power and motion; the patient sinking almost instantaneously into a state of profound stupor, resembling deep and heavy sleep, from which it is impossible to rouse him in the slightest degree. This mode of seizure constitutes what authors term *perfect or strong apoplexy*, and generally terminates fatally in a very few hours, and sometimes in less than an hour.

In other cases, the patient is seized with sudden deep-seated pain in the head; tremor of the extremities; confusion of ideas; nausea or vomiting; and vertigo. He then becomes insensible, and sinks down as from syncope; in a short time, however, he recovers sufficiently to converse, and, perhaps, to walk about, but still complains of pain and other unpleasant sensations in the head, with confusion of the mind and giddiness. In the course of a few hours after this temporary recovery, the brain becomes gradually more and more oppressed, until complete insensibility is induced, and the patient lies in a state of deep coma.

Sometimes paralysis of one side suddenly occurs, with loss of speech; pain in some part of the head; slowness and confusion of the mind; and vertigo—the sensorial functions and consciousness remaining. By degrees, however, the brain becomes more op-

pressed, and the sensorial powers gradually decline, until profound apopletic stupor ensues.

In whatever way the apoplectic attack comes on, the following phenomena attend its course, and serve to distinguish it from the other forms of soporose affections. Immediately after the accession of the fit, the pulse and respiration are weak and often scarcely perceptible. Both, however, soon recover from the first shock; the pulse becomes full, slow, regular, and often hard; and the respiration slow, oppressed, interrupted or irregular, and *generally* stertorous. Some writers contend, that in true apoplexy, *stertorous* breathing is invariably present; but this is not confirmed by general experience. In violent instances, expiration is attended with a puffing motion of the lips, and a frothy saliva is blown out with a sputtering noise. The face is sometimes livid and of a turgid appearance; more frequently, however, it is pale and somewhat bloated. In some instances, the eyes are blood-shot; in others, they are dull, glassy, and fixed, or rolling about in their sockets. In general, the pupils are considerably dilated; and in some cases they are permanently contracted. Dr. Cook states, that he has seen instances in which the pupils were almost entirely closed.

The extremities are usually below the natural standard of temperature, but the skin about the body, and particularly of the head, is warm. The jaws are generally spasmodically closed; sometimes they remain widely open. The power of swallowing is occasionally, in very violent cases, entirely destroyed; but in most instances, though greatly impeded, it remains to a degree sufficient to enable the patient to swallow small portions of fluids. In all instances, very considerable torpor of the bowels exists; and this is sometimes so great as to resist every effort to evacuate them by cathartic remedies. Clammy sweats usually break out about the head and neck, and the same sometimes occurs on the extremities. In moderate cases, the temperature of the skin, and appearance of the countenance, do not differ from their natural condition; and in such cases, the power of deglutition is generally sufficiently strong to permit the easy administration of medicines by the mouth. This is most apt to be the case in what is termed the apoplectic stage of hydrocephalus. Towards the termination of fatal cases, the pulse becomes small, irregular, and frequent; and the respiration slow, short and interrupted by long intervals.

If the disease does not end in death, it may terminate

1. In the perfect restoration of all the suspended functions, and the enjoyment of good health. This favorable issue may be ex-

pected when the various organs gradually resume their respective functions, more especially if consciousness and a command over the voluntary muscles gradually return. The tongue is often the first organ that obeys the commands of volition; after the upper extremities, then the inferior ones, resume their power of motion; the muscles of the face being in general the last to return to their regular action. Not unfrequently, during the progress of recovery from an attack of apoplexy, general and pretty free perspiration, or diarrhœa, and in some instances active vomiting, occurs. Sometimes sanguineous evacuations attend the favorable termination of the disease; such as epistaxis or hæmorrhoidal and menstrual discharges.

2. In *paralysis of certain parts* of the body, with a restoration of health in all other respects. More or less paralysis, indeed, remains after the majority of apoplectic attacks, In some instances the palsied muscles soon resume their natural power; in others, they slowly recover a certain degree of power, without, however, ever regaining their natural state of activity; whilst in some cases little or no perceptible diminution of the paralytic affection ensues —the affected muscles remaining permanently palsied. In most cases in which permanent paralysis is left by an attack of apoplexy, the mind becomes very perceptibly weakened. The power of comprehending complex ideas and the memory are often almost entirely obliterated in persons who recover from a severe apoplectic seizure. Paralysis from apoplexy is usually of the hemiplegiac variety; but in some instances, the palsy is confined to a single member, or to certain muscles, more especially to such as derive their nerves immediately from the brain, as those of the face.

3. The apoplectic fit may terminate in a general febrile condition after the sensorial oppression has passed off. In some instances, strong *synochal* fever is developed in proportion as the nervous functions are restored; in others, fever of a *typhoid* character with manifest gastric irritation, ensues. Several years ago, says Dunglison, I was called to a gentleman who a few minutes before had been seized with a fit of strong apoplexy. Under the usual treatment he gradually recovered so as to be able at the end of the fourth day to sit up and converse without difficulty. On the next day strong febrile reaction, with a hot and dry skin supervened, and notwithstanding the most vigorous antiphlogistic measures, violent delirium ensued, and continued for several days before it subsided. The patient eventually recovered.

The diagnosis of apoplexy is not, in general, attended with difficulty. Where a loss of consciousness of the sensorial functions and voluntary motion suddenly come on, and continue with an active state of the pulse and full respiration, the case must be regarded as apoplexy. From *syncope* and *asphyxia*, this form of soporose disease is distinguished by the absence or almost imperceptible action of the pulse and respiration in the two former affections. It is sometimes difficult, however, to distinguish apoplexy from deep intoxication. The habits of the individual, the smell of his breath, and the general relaxation of all the muscles, particularly those of the jaws and the sphincters, will generally lead to a correct diagnosis on this point. Dr. Cook observes, that "as the treatment for true apoplexy would not be improper for intoxication, a mistake respecting the cause would not be hurtful to the patient."

The duration of the apoplectic attack varies from a few minutes to two or three days. In some instances, death almost immediately follows the apoplectic seizure. This indeed has been doubted by some. Dr. Cook thinks that the cases of sudden death which have been ascribed to apoplexy, depended probably, on some affection of the heart or large vascular trunks within the chest.—There is good reason for believing that this has sometimes been the case; but it is by no means improbable that sudden and extensive extravasations of blood into the substance of the brain, particularly in that part of this organ which gives rise to the respiratory nerves, may suddenly abolish, not only the sensorial powers and voluntary motion, but also the action of respiration, and thus produce speedy death. Death from this affection, however, seldom takes place before the second or third hour from the attack. In most instances, indeed, from twenty to thirty hours, and in some cases five or six days pass before the final termination occurs.

Besides the unfavorable symptoms mentioned above, there are various others which are said to indicate especial danger. When the attack commences with sudden severe pain in the head, or with vomiting, or a general spasmodic rigidity of the muscles-danger is to be apprehended. General, clammy, and profuse perspiration, with a small and frequent pulse, is also a peculiarly unfavorable sign.

The prognosis is also influenced by the character of the exciting cause, and still more by the presence or absence of that

corporeal habit, which experience has shown to predispose especially to this affection.

When there are evident manifestations of some degree of sensibility remaining; such as contraction of the pupils from the stimulus of light; some power of swallowing, etc., together with free and regular respiration, without stertor or discharge of saliva from the lips; a warm and general perspiration; the occurrence of sanguineous discharges, particularly from the nose or hæmorrhoidal vessels; diarrhœa, or a copious flow of urine; reasonable hopes may be entertained of a favorable issue of the case.

Apoplexy shows itself in two different terms in children: first, at birth (the Apoplexy of new-born infants,) consisting of cerebral and meningeal congestion, without, in general, hemorrhage or softening; secondly, Apoplexy occurring during childhood, and marked by hemorrhages, either in the ventricles or on the meninges.

The Apoplexy of new-born infants, called, also, by the accoucheurs, the apoplectic or apoplectiform state, is distinguished by a livid blue color of the skin, especially of the face; the lips are of a violet hue, and the eyes closed, the beatings of the heart either arrested or feeble, and no respiration. This affection results from difficult and prolonged labor, in which the head of the child has been long engaged in the pelvic strait, or in which a strangulation has been produced by the umbilical cord twined round the neck; or the placental circulation interrupted by compression of the cord, as in breech presentations. Apoplexy has been confounded with the asphyxia of new-born infants, but the states of the system are very different from each other. In asphyxia the child is pale, and lips colorless, there is anemia and a defect of the vivifying influence of blood on the brain. On the other hand, in Apoplexy the brain is compressed, and suffers from excess of blood; and, probably, the lungs are in a similar condition.

Treatment.—From the great variety of causes which we have enumerated, it will be evident to every practitioner, that we are to use a great variety of means in removing this disease, and we may at once say, that a large proportion of cases will prove mortal in despite of the best and most efficient remedies.

If Apoplexy arise from pressure produced by a piece of bone, as in fracture of the cranium, the surgical operation of trephining must be resorted to in order to elevate the bone. We would advise, however, that this operation be put off to the last possible

moment, as it is so frequently mortal and nature has often effected cures where this operation has been recommended and thought to be inevitable. If this state of the system is induced by intoxication or from anything taken into the stomach, an Emetic of the Third Preparation of Lobelia or the stomach pump, must be the first resort. Let there also be administered as soon as possible a copious enema composed of a large proportion of third preperation of Lobelia inf.

Friction to the limbs and warm applications to the extremities are valuable adjuvants in restoring a normal circulation and withdrawing the blood from the brain.

If the phenomena of this disease, rest upon the probability of pressure of the brain, the main object to be kept in view in the treatment is the equalization of the circulation and a removal of the consequent pressure. In the actual paroxysm of the malady, the patient should be placed in such a posture, as will favor a flow of blood from the head. Warmth and frictions should be applied to the lower limbs—such as hot bricks, bottles of hot water, fomentations; flannels wrung out in a very strong preparation of vinegar and cayenne pepper and applied with considerable force in rubbing the feet, ankles and legs; at the same time we should administer clysters in quick succession, certainly every ten or fifteen minutes, composed of one half tea-spoonful of composition, a tea-spoonful of cayenne pepper, two table spoonfuls of number six, and a tea cup full of luke warm water. As soon as the sufferer can be induced to swallow, composition and number six should be freely given. Simultaneously to this remedial attention, active preparations should be made to administer the vapor bath to the legs and lower portion of the body. Repeated cold effusions in the mean time to the head and face.—When the patient is sufficiently recovered a full course of medicine should be given; and it need scarcely be added that the subsequent, fundamental treatment will consist in courses of medicine, as the employment of means best calculated to lessen a determination of blood from the brain, and force it from the cerebral vessels.

The operation of cathartic medicine will also be found beneficial in their influence in diminishing the afflux of blood to the head, as their tendency is to excite a free secretion in the intestines.

The prompt and judicious employment of the foregoing means embraces everything that may be deemed efficient in the remedi-

ate management of Apoplexy. From whatever cause the disease may arise, our whole efforts should be directed to the removal of the inordinate vascular action, or turgescence within the head.—Some modifications in the mode of the measures mentioned, according to the general constitutional habit, age, and character of the exciting causes, will of course be necessary.

During convalescence, light, unirritating diet only should be admissible.

Persons predisposed to Apoplexy by physical or corporeal conformation should cautiously guard against all predisposing causes, and frequently take a course of medicine to diminish the liability to cephalic congestions.

After the fit is over and the patient has recovered, it is best to keep up a stimulating and tonic course of treatment. If we find the apoplectic attack to be caused by Ischuria, it will be necessary to give small doses of spirits turpentine, and some of our active diuretics, such as Uva Ursi, Spirits of Nitre, Eupatorium Perpu, (Queen of the Meadow) and the most energetic measures to produce action in the skin, that the transpiration may eliminate the urine from the blood, which is really the cause of the fit.

We shall not recommend the Electic Battery in the primary treatment of Apoplexy, but it may be of great use in removing some debilitated states of the system which may remain as the sequents of this disease. In Palsy, for instance, or some states of the system which require that kind of stimulation.

Ligatures applied to all the extremities will have a tendency to prevent the flow of blood to the head by stopping the venous circulation, and in an emergency, till other means can be obtained, this practice will be good.

During convalescence, we may prescribe mild aperients, moderate tonics, regular and appropriate exercise in the open air, bathing the surface every morning and food easy of digestion.

If a patient have an attack of Apoplexy within a few hours after a hearty meal, free vomiting will be imperatively demanded. The third preparation of lobelia must be poured into the mouth, and will be much more likely to be swallowed than a preparation of lobelia less stimulating. The impression of a powerful stimulant in the throat will excite the act of swollowing, and the medicine will be taken into the stomach, when the lobelia powder in luke-warm water, or composition tea would fail to excite the act of swallowing, whilst the patient is unconscious.—When the functions of the brain are suspended, as they are in

Apoplexy, large doses of medicine will be required in order to effect vomiting; or as an efficient aid to execite vomiting, the lobelia powder may be administered by injection in luke warm water and retained. A table spoonful of the powder may be used in the injection, which must be repeated promptly if necessary.

No unfavorable consequences will arise from exciting vomiting in Apoplexy. It is not so much a determination of blood to the brain that occasions Apoplexy, as it is stagnation of blood in the capillary vessels of the brain. To restore circulation, there are no means upon which we can place so much confidence as emetics.

PARALYSIS—PALSY.

General Observations.—The next disease which we will notice, is one which very often follows apoplexy; and is the result of that state which, in the first instance, is apoplectic. We refer to paralysis.

It may be defined to be a loss or diminution of sense, or of motion, or of both; independent of any stiffness of the part, or of inflammation, or any mechanical impediment; but independent entirely upon the condition of its nerves, or some other part of the nervous system. This disease frequently begins with sopor; or even with coma, and downright apoplexy. If it begin with a great degree of heaviness, it is called "sopor."

It is usually divided into three varieties:—"hemiplegia," affecting one half of the body divided *vertically;* "paraplegia," affecting one half of the body divided *horizontally:* and "paralysis *partialis*," affecting only one particular limb, or one particular sense. The partial paralysis may be of the eye—"amaurosis;" or of hearing—"dysecæa. There is no particular name for paralysis of one leg, one arm, or one side of the face."

The disease may not only vary according to the part it affects, but it may also vary in degree; so that the person shall have no use whatever of his senses, or of a portion of his body; or he shall have a use of them, only that it is impaired. Then the paralysis may differ according as it affects sensation, or motion, or both. It is very common to see paralysis affect only sensation: this must, of course, be the case with parts which have naturally no motion. If such a part be paralyzed, it must be paralyzed in *sensation.*—

With respect, for instance, to the internal part of the nose, the paralysis which affects it must clearly be a paralysis of sensation; and so with respect to the internal part of the ear, and likewise of the eye. If the paralysis be within the orbit—so that motion is affected—it is not the fault of the eye, but of the muscles which move it; but paralysis affecting the globe itself, must be paralysis of sensation. Sometimes, however, in the *extremities* we have a loss only of sensation; but that is rare. Sometimes a person loses the sense of touch, in particular parts of the body; but it is not of frequent occurrence; for generally, where a part is endowed with both sense and motion, the part either has only motion affected, or sensation or motion together.

There is still another variety. When a part is paralyzed both as to sensation and motion, the proportion of the two is very various. Sometimes a person will be powerless entirely in a limb, or in one half of the body; and yet he will *feel a little*, while he cannot *move* at all; and sometimes the paralysis will be so perfect in both respects, that we may pinch him as hard as we please, and he may endeavor to move as much as he will, and yet both will be in vain.

There are still some rarer varieties than these. What we have now mentioned is almost of daily occurrence; but there are some variations not so common. For example: a person will sometimes lose *sensation* on *one* side of the body, and *motion* on the *other*.—He may lose *sensation* as to a *leg* and *motion* as to an *arm;* and *vice versa*. There is even a more minute variety than this. There will be a *perfect* loss of sense and motion in *one* limb; while in *another* limb, on the same side, the loss of either sensation or motion is *imperfect*. The patient will feel a little with his *arm*, although he cannot *move* it; while, in his *leg*, he can neither feel nor produce the least motion. Nay, what is still more curious, this state has sometimes alternated. The part which could not *feel*, has become *motionless*; and the part which was *motionless* has, by and by, lost *sensation*.

Sometimes, when half the body is paralyzed, the other half is in a state of great agitation, and convulsions. These are cases of rare occurrence; but they are mentioned by the most respectable authors; so that there is not the least doubt as to their truth. Occasionally there is an opposite state to the *loss* of sensation—the senses become morbidly *acute;* so that a person is quite powerless as to the *motion* of an arm or a leg, on one side of the body; and yet he will have such a morbid acuteness of sensation, that the

creeping of a fly along the arm, will give him great uneasiness.—We have seen many persons who could not use their arm, or say if a fly lighted upon it; but occasionally there has been such a morbid degree of sensibility, that the descent of a fly upon them has been most uncomfortable.

Mode of Invasion.—Paralysis may invade very slowly—quite imperceptibly; or it may attack very suddenly. After it has once begun, it may extend or not; and it may proceed very slowly or speedily; and may likewise increase in intensity, or never increase at all. The patient may live many years, without any further increase. It may, therefore, take place suddenly, or very slowly; it may remain stationary, or it may cease; or, if it do not cease, it may remain stationary, or it may extend; or, on the other hand, it may become more intense. Sometimes one organ becomes affected after another.

Coexistent with Other Diseases.—Paralysis is very frequently united with other nervous diseases; particularly with mania and epilepsy. Persons who are epileptic, frequently become paralytic at last; though, perhaps if they be adults, not till after many years have elapsed. Insane persons, too, frequently are seen to be paralytic. When recovery takes place, it is in general very slowly; but sometimes, though rarely, recovery is sudden.

Causes.—This disease may be induced by anything which compresses a portion of the nervous system; which divides any portion of the nervous system; or by the disorganization of a portion. It is obvious, that whether a part of the nervous tract be compressed (so that the function cannot continue along it) or whether it be divided (so that the function cannot continue along it,) or whether it be disorganized, the result must be the same. Accordingly, if a nerve be divided, the parts below are paralyzed. If the spinal marrow be divided, or completely compressed, or softened at any spot, the parts below are necessarily palsied. The compression may rise from fluid effused around, from fluid effused in the substance, from a collection of blood, or, (in fact) from anything capable of producing pressure. But sometimes the disease would appear to arise independently of compression, division, or disorganization. The nature of this state we cannot exactly ascertain; but the part is unfit for its functions. Lead will have this effect; and arsenic, together with various other poisons, will deprive a part of the power of continuing its functions—so that paralysis take place, without our being able to say what is the exact effect produced by these agents. Cold, likewise, will produce paralysis. If a part be

exceedingly benumbed, it produces common paralysis, for a longer or shorter time afterwards.

Its Extent Depends on the Part Affected.—Although we are not aware that any difference would be discovered by the eye of an anatomist, in examining the parts, yet the higher the source of disease, the more extensive are the effects; so that compression, division, or disorganization of the lower part of the spinal marrow, does not produce so extensive a paralysis, as the same causes acting higher up; and if the cause be within the head, (in one of the hemispheres, or one of "thalami nervious opticorum," or one of the "corpora striata,") patients generally have paralysis of the upper part of the body. The cause of hemiplegia therefore, is in the brain. If *both* sides of the brain be compressed to an intense degree, then we have apoplexy; for apoplexy is evidently double hemiplegia. If the cause on the other hand, be very *slight* pressure within the head, we have an exceedingly slight paralysis—merely a little numbness at the ends of the fingers. Many persons who have a little fulness of the head, will have a numbness at the end of the fingers, and tingling; and, on losing blood, it will go off. There is every degree of paralysis, according to the pressure. If the pressure be inconsiderable, we have no more than an affection of the nerves, at the most opposite part of the brain.

Palsy may arise in consequence of an attack of apoplexy; and like it, may be occasioned by anything that prevents the flow of the nervous power from the brain into the organs of motion; hence tumours, over distension and effusion, distortions of the spine, and a thickening of the ligaments that connect the vertebræ together, often give rise to it. It may also be occasioned by translations of morbid matter to the head, by the suppression of usual evacuations, and by pressure made on the nerves by luxations, fractures, wounds, or other external injuries. The long continued application of sedatives will likewise produce palsy: as we find those whose occupations subject them to the constant handling of white-lead and those who are much exposed to the poisonous fumes of metals or minerals are very apt to be attacked with it. Whatever tends to relax and enervate the system, may likewise prove an occasional cause of this disease: hence those who lead a sedentary or luxurious life; those who are guilty of frequent irregularities or great debaucheries; those who are engaged in intense studies during the night, or labor under great distress of mind or anxiety are very subject to this malady.

It has very properly been doubted by some writers whether palsy of the lower extremities alone, or of one single part, has so often its cause in the brain as it is said. The cause may, it is thought, also reside either in the nervous cord of the spine, or in the abdominal viscera, or in the affected limbs themselves. The spinal cord is certainly composed of a nervous mass, and has the same membranes as the brain; hence it may be affected by the same disease, such as inflammation, suppuration, induration, tumour, conjestion or ossification of the blood-vessels; collection of any fluid, by irritation, weakness or exhaustion of the nervous mass. The spinal cord may also be injured or compressed by the deviation of any of the vertebræ. It is to inflammation of a more chronic form in the part, that we impute those shaking palsies which are attended with pain.

All the varieties of palsy more generally appear in the aged and infirm than in the young and robust. The left side is more frequently affected than the right.

A decline of energy is often to be regarded as a commencement of palsy. In the premature diminution of the capacity of either bodily or mental exertions, there may be, in many cases, a well founded fear of ultimate paralysis, unless the tendency to it be in due time counteracted by the relinquishment of pernicious habits, and the administration of appropriate remedies.

Palsy usually comes on with a sudden and immediate loss of the motion and sensibility of the parts; but in a few instances it is preceded by a numbness, coldness and paleness, and sometimes by slight convulsive twitches. When the head is much affected, the eye and mouth are drawn on one side, the memory and judgment are much impaired, and the speech is indistinct and incoherent. If the disease affects the extremities, and has been of long duration, it not only produces a loss of motion and sensibility, but likewise a considerable flaccidity and wasting away in the muscles of the parts affected.

It has been mentioned, that a curvature of the spine, owing to one or more of the vertebræ being displaced, sometimes induces paralytic affections of the lower extremities, from the pressure that they make upon the nerves of those parts; and that sometimes the disease appears to arise solely from the thickening of the ligaments that connect the vertebæ together, without any particular affection of the bones. When one of the vertebræ only is diseased, it is observed that the patient is more completely deprived of the power of his limbs than when two or more of them are dis-

placed, owing, as Dr. Bell thinks, to the angle being more acute, and consequently the pressure on the medulla spinalis greater, when one bone only is thrown out of the range. This also accounts for the paralytic symptoms in some being less remarkable in the more advanced stages of the disease than they were at first; for although one bone only is displaced at first, yet one or both of the contiguous vertebræ almost constantly yield at last; and the difference arising from this is so great, that patients almost always linger and die in the course of a year or two, often in a less time, when one bone alone is deranged; while they live for a great length of time, frequently as long as if no such circumstance had occured, when the curvature of the spine becomes more extended.

Paralytic affections from distortions occur in all ages; but more frequently about puberty than at any other period, and more commonly in girls than boys. In general the effects that result from them are observed before the cause is suspected; for there is seldom much pain in the part immediately affected. When distortion of the spine occurs during infancy, the patient appears to be suddenly deprived of the use of his limbs; but at more advanced periods, he complains first of feebleness and languor, and of numbness or want of feeling in the lower extremities. By degrees this want of sensibility is found to increase, and he is often observed to stumble, and to drag his legs, instead of lifting them properly; nor can he stand erect for any length of time without much difficulty. At last he loses the use of his legs entirely, which become altogether paralytic; and when the spine is distorted much forward, so as to compress the thoracic and abdominal vicera, he becomes distressed with difficulty of breathing, or with complaints in the stomach and bowels, according to the part of the spine that is diseased.

Palsy is to be distinguished from apoplexy by the pulse; which in the former disease is soft and slow, by the loss of sense and motion being only partial, by the absence of stertor, and likewise by the other symptoms.

When palsy attacks any vital part, such as the brain, heart or lungs, it soon terminates fatally. When it arises as a consequence of apoplexy, it generally proves very difficult to cure. Paralytic affections of the lower extremities, ensuing from any injury done to the spinal marrow, by blows and other accidents, usually prove incurable. Palsy, although a dangerous disease in every instance, particularly at an advanced period of life, is sometimes removed by the occurrence of the diarrhœa or fever. A feeling of warmth,

and a slight pricking pain, as if stung by ants, in the parts affected, with returning sensation and motion, are favorable symptoms.

The morbid appearances to be observed on dissection of palsy are pretty similar to those which are to be met with in apoplexy: hence collections of blood, and of serous fluids, are often found effused on the brain, but more frequently the latter, and in some instances the substance of this organ seems to have suffered an alteration. In palsy, as well as in apoplexy, the collection of extravasated fluid is generally on the opposite side of the brain to that which is affected.

Having made these general remarks on the subject of Paralysis, we next proceed to describe the different varieties under their approprite heads :

HEMIPLAGIA—PALSY OF ONE SIDE.

Description and Causes.—Hemiplegia is, very commonly, a sequel of Apoplexy. When a fit of Apoplexy is over, and paralysis is left, the form is usually hemiplegic. Generally, when hemiplegia occurs suddenly, there is a degree of Apoplexy ; an imperfect apoplectic fit;—a degree of drowsiness and sleepiness. There may be no stertorious breathing ; but the person generally loses himself for a time. Hemiplegia more frequently commences in that way, than in any other ; but where a person has a downright attack of fully formed Apoplexy, the disease is very likely indeed to follow. Serres says, that of one hundred cases of Apoplexy which he examined, seventy-nine of them were complicated with palsy ; so frequently is Apoplexy followed by Palsy. Occasionally there is not only no real perfect apoplexy, but no sopor,—no loss of the individual to himself for a time—but merely vertigo—a little confusion ; and then, to his great astonishment, the patient finds an arm or a leg palsied.

Causes and Morbid Appearances.—The cause of this particular form of paralysis is sometimes mere fulness about the head—fulness which is often transient ; and therefore the disease is transient. Frequently there is found, after death, serous effusion ; and that, perhaps, in a very inconsiderable quantity, even where the paralysis is very great ; and perhaps the effusion is rather the effect of the morbid cause which induces the paralysis itself. Effusion, however, is often the cause of paralysis. The most frequent state of the brain which we see, is a softened state of some one spot. It is curious how small a portion is sometimes sufficient,

when softened, to give rise to this disease. Occasionally the softening is very great—extending over a great part of one of the hemispheres, or the "corpus callosum." This softening, in many cases, is clearly the result of inflammation. A chronic inflammation of the brain, often precedes this softened state; and very frequently it follows an *acute* inflammation of the brain. Persons seized with acute inflammation of the brain become paralytic; and we afterwards find the brain more or less softened. Sometimes the disease will increase. The patient becomes delirious; perhaps he has epileptic fits; and the head is very hot. All the time he is delirious, he complains of great pain of the head, and on opening the skull, we find a portion of the brain softened; and around the softened spot, and even running through it, are seen red vessels.

Occasionally the paralysis, in hemiplegia, has been induced by a coagulum of blood; and this coagulum may be of all sizes. When paralysis comes on in a moment, without any previous inflammation, we imagine that in general there is an effusion of blood. Apoplexy may be the result of the effusion of blood; but when the apoplexy is over—when, we presume, that general state of congestion of the blood-vessels, which was sufficient to produce apoplexy, has gone off—then there remains a clot just sufficient to produce hemiplegia. The blood becomes absorbed—sometimes leaving a cavity, and sometimes not; the parts then all become contracted together; and a cicatrix is formed. Around this spot, the brain is generally softened. We mentioned this circumstance, as taking place in apoplexy; and it also occurs in paralysis. The paralysis arises from what remains after the clot has been absorbed. The brown, dark colored substance, which is sometimes taken from the brain of a hemiplegic patient is the remains of blood. The blood was nearly all absorbed; but the brown softened part left behind, was quite sufficient to produce paralysis.

Dr. Abercrombie says, a cyst will form round a clot of this kind, even in a fortnight. Whether extravasated blood can be absorbed from a ventricle, if effused in any quantity, we do not know; but we should think not. In most cases of that description, the blood has lacerated the brain, and forced its way from the substance of the hemisphere, into the ventricle. Four ounces of blood have been found, after paralysis, in a cavity formed in the brain. When the brain has been softened, and has produced hemiplegia, or fatuity, or only an aberration of the mental faculties, the vessels will sometimes suddenly give way; and then there

is apoplexy; an effusion of blood suddenly taking place into the softened part. Softening is supposed, by some, to resemble "gangrena *senilis*;"—that gangrene which takes place in the toes of old people, from ossification of the small vessels. Some will have it, that it is not the result of inflammation; but of diseases of the vessels, affecting the circulation.

Diagnosis.—From the voluntary muscles of half the body being more or less deprived of the influence of the will, the face is usually drawn to the opposite side. From the muscles losing the influence of the nerves connected with the brain and spinal marrow, they are more or less powerless; and the muscles of the opposite side, which are in due connection with the brain, get the better of them, and master them completely, so that the face is drawn to the healthy side. The tongue, if it be drawn at all, is usually drawn to the same side, on account of the operation of the muscles. From the impaired state of the muscles of the mouth and tongue, the person does not swallow his saliva as soon as it is formed. We are always getting rid of it in health more or less insensibly; but for want of this voluntary action, it collects to a certain amount, and then runs out of the corner of the mouth, so that the patient slobbers. If the disease affect the mouth with any intensity, the voice is thick, from the affection of the muscles of the throat. The patient's utterance is altered; he "clips the king's English," as people say; and perhaps he can scarcely pronounce his words with sufficient distinctness to be understood.—If the paralysis be perfect, the face and gate of the person at once show the nature of the disease, without the necessity of asking a question. The mouth is drawn to one side; the salivia runs out; the arm hangs useless; and, if the patient attempt to walk, he drags the affected limb in a sort of semi-circular manner; having the ball of the great toe, for the most part, in contact with the ground.

When the disease continues for any considerable time, the limbs waste; they become flabby to the feel, and diminish in size. The mind, too, generally suffers a little. The patient does not find his attention so good as it was before; nor his memory. His feelings are much affected, so that he is disposed to burst into tears, without any evident external cause, and he is, for the most part, very peevish. Dr. Cook, in his work on Nervous Disease, mentions the case of a person who had been very captious, but who, after a fit of palsy, became the most good-natured person possible. The symptoms which occurred at the time of the fit, or

preceded it, (such as vertigo and headache,) may continue afterwards, and may increase. There is great variety, as to the effects of sense and motion, in the affected part. Sometimes the person retains his *feelings*, perfectly, but loses all powers of *motion;* and, in other cases, a person loses both; but it is a very rare thing indeed to see a loss of the sense of touch. Usually motion is impaired or destroyed, and sensation more or less so, or not at all.

Frequently followed by Apoplexy.—This disease, very frequently, does not *follow* Apoplexy, but is itself *followed* by Apoplexy. We may easily imagine that, if the cause be in the brain, although it may at first be so inconsiderable as only to be just sufficient to produce hemiplegia, yet it may, if the morbid process go on, become more considerable; and, at last, it may be sufficient to produce apoplexy. While apoplexy sometimes leaves hemiplegia, hemiplegia is sometimes followed by apoplexy.

Progress of Amendment.—When the disease diminishes, (for the most part) the arm mends last: that, after the patient has begun to walk tolerably with the affected limb, his arm long remains useless at his side; and sometimes it never recovers. There is a variety in this. Some persons recover both hands at once; but if there be any difference, it is in favor of the leg.—While some persons completely recover, others do not recover at all; and while some will get worse, others will remain stationary. Some persons will live ten, or perhaps fifteen years, in the same state. Another difference occurs. They will mend up to a certain point; perhaps for a year or two; and then never advance further.

A very curious symptom, sometimes observed in hemiplegia, is a loss of verbal memory. This is quite distinct from a loss of the power of utterance. In general, persons in this disease do not speak well, because they have not full power over the voluntary muscles of articulation; but, sometimes, if they *can* speak well, they have not a proper word in their mind, and they cannot make themselves understood. Some forget entirely the meaning of words; some forget entirely the meaning only of *names;* and some do not forget these *entirely;* for the moment the proper word is mentioned, they say—"Right, thank you!" They know it directly. This affection of the mind occurs, sometimes, without any hemiplegia; and sometimes it lasts for a period, and then hemiplegia supervenes. Some have an abundance of *words*, but do not know their proper *meaning.* They distribute them about

very incorrectly, so as not to express their wishes. Others have only a *few* words, and with these they endeavor to say every thing.

Dr. Prichard, in his work on Diseases of the Nervous System, (to which we have so often referred,) mentions the case of a lady, who forgot the names of all persons; and another who forgot the names of some things, and who likewise forgot that she had ever been married. Dr. Currie mentions the case of a man, who forgot the Hebrew language alone, out of several with which he was acquainted. Mr. Abernethy used to mention the case of a man who, after an injury of the head, though he knew English very well, could speak nothing but French. He had been equally acquainted with both languages; but, after the injury he had sustained, he could only speak French. He also thought he was only sixteen years of age. Dr. Rush mentions the case of a lady, who forgot her English, and spoke nothing but French for a month.

A writer on hemiplegia, named Wepfer, mentions a case of this disease, in which, after the stupor ushering it in went off, the patient recollected neither person or words; and when he recovered the words again, he forgot their meaning. He lost all his language; could not utter a single word; and, at last, when he could, he forgot their meaning; and he preferred Latin to his own native language, which was German. He could read any thing, a few words at a time; and he wrote both Latin and English in elegant characters; but without knowing the meaning of a word. The end of the case was, that he died apoplectic.

PARAPLEGIA—PALSY OF LOWER EXTREMITIES.

Description and Causes.—In Paraplegia, we have, one half of the body horizontally divided, without sense and motion.

It is very frequently produced by a fracture of the vertibræ, and the higher the vertibræ in which the fracture takes place, the higher is the paralysis; and the sooner does death take place, if death does occur. Caries of the vertibræ, also, frequently produces this affection. Any disease of the spinal marrow, and many diseases of the membranes, produce paraplegia. In some instances, the spinal marrow is softened into a pulp, at one particular spot. Sometimes it is exceedingly hardened; and sometimes the membranes, also, are exceedingly diseased. Sometimes there is sup-

puration—producing compression; and sometimes an effusion of serum, or of blood.

All the diseases which we mentioned on this subject as occurring in the brain, and producing hemiplegia, and other forms of paralysis, may occur in the spinal marrow, and produce paraplegia. Sometimes a clot of blood has been found; sometimes considerable hemorrhage, compressing the spinal marrow; tumors of various descriptions; exostosis of bone; as well as a mechanically altered position of the parts, diminishing the canal locally.

We rarely see *hemiplegia* produced in this way; the reason of which is evident. Cold is continually applied to the *lower* extremities *horizontally*, but it is very seldom indeed applied to the *upper* extremities *vertically*. The lower extremities are frequently in water, while the upper are out.

But besides all these causes in the spinal marrow, there can be no doubt that paraplegia arises, sometimes, from an affection of the head; because, occasionally, we find no uneasiness whatever in the spinal marrow; but there are symptoms of great uneasiness in the head, such as giddiness and drowsiness. Dr. Baillie wrote a paper in the "Transactions of the College of Physicians," to show that, in the greater number of cases of paraplegia occurring in adults, the cause was situated in the head. However, he did not prove the point at all. He gave but one dissection, and that was not seen by himself. Whoever reflects on all the cases which he has seen of this kind, will find that, in the greater number of instances, the cause was evidently situated in the spinal marrow. He will arrive at this conclusion, from the cause having been applied to that part; from the uneasiness being felt there; or from the morbid appearances presented there on dissection; but occasionally there can be no question that the disease arises from an affection of the head.

Cause of the Spasms.—The reason why we have spasms, twitchings, and considerable pain in this disease, is that it is so frequently produced by a certain degree of inflammation of the spinal marrow; an inflammation that softens it, or by something pressing on the spinal marrow, or at any rate producing great irritability. The cause which compresses the spinal marrow, also irritates it at the same time; and the irritation produces such an affection of the roots of the nerves, that a sense of pain is felt; and if it be a nerve of motion, a spasm occurs. When the part is found compressed by a bone, and this compression is only partially established, then we have considerable twitchings.

Diagnosis.—In this disease, there is, very frequently, constipation and retention of urine. At last, however, the sphincters become paralyzed, and there is neither retention of urine nor costiveness; but both fæces and urine pass involuntarily. In this form of paralysis, it is very common for the affected parts to experience spasmodic twitches and catches. This is an occurrence comparatively rare in *hemiplegia*. Very frequently, too, there is violent pain. In *hemiplegia* there is *sometimes* pain: but by no means so frequently as in *paraplegia*. The urine, in this disease, is sometimes altered in quality. It is not sufficiently acid. It is perhaps alkalescent; but when it is not, still there is a deficiency of acid; and, soon after it is passed, it becomes strongly alkalescent. This is more particularly the case, when the paralysis has arisen from an injury to the spine.

When paraplegia does not come on suddenly, it usually commences in the lowest part, the toes, and extends upwards. Its extent is various; but it generally reaches a little higher than the hips.

But in very many cases we detect no alteration that seems adequate to explain the paraplegia. The palsy creeps on slowly and insidiously, without any particular pain, or violent symptoms; there is no tenderness or bending of the vertebræ. The weakness commences mostly in the legs, which appear to the patient heavier than usual, and of which the healthy sensations are also perverted. The toes tingle, or are numb; he experiences a feeling in them as if a number of ants were crawling on the skin. This is so common a circumstance as to have given a name to the symptom, *formication*. The patient straddles as he walks. His legs are lifted awkwardly, the toes being often the last part to quit the ground; they are then flung obliquely forwards and outwards, and the feet flap down heavily and uncertainly at every step. By degrees the weakness of the lower limbs increases; the palsy creeps upwards, affects the bladder and rectum, at length invades the arms, and ultimately the patient dies; yet very faint traces of disease, or no traces at all, may be visible upon inspecting the brain and spinal cord. The commonest morbid condition is *softening* of some portion of the cord; and this is also the condition which is the most liable to be overlooked.

In some cases of paraplegia involuntary retractions of the palsied limbs can be excited; in some cases they cannot. When the influence of the cerebrum is quite excluded by the operation of disease affecting the special cord itself, then is the susceptibility

of excited movements the most lively. But the increased susceptibility which has this inverse relation to the voluntary power, is limited to that portion of the body, the nervous arcs belonging to which lie beyond the seat of the disease, more distant from the brain. Hence it follows that we may determine, approximately, the place of the disease, by the test of these reflex actions. The mischief may be situated, or may extend, so low down, that there are no uninterrupted nervous arcs below it. Supposing it to lie as low as, or to reach, the commencement of the cauda equina, we should have no involuntary movements. Conversely, when no involuntary movements can be excited, the spinal disease is, at least, as low as the upper lumbar vertebræ. Thus, we have another mode, in addition to those pointed out in former remarks, of determining, in a given case of spinal palsy, whereabouts, or to what extent, the cord is implicated in the disease.

Paraplegia has been ascribed to some primary morbid condition of the *nerves* which belong to the spinal cord. That the functions of the *efferent*, or motor, nerves may be impaired, and even arrested, by exposure to cold, and by other injurious influences, is both possible and probable. But a diseased or disordered state of the *efferent* nerves has been assigned as a cause of the palsy.—This is less clearly conceivable. Coexisting disease of the kidneys, and coexisting enteritis, have been thought sufficient to produce and keep up a paralytic condition of the lower limbs. The extremities of certain incident nerves being affected, a morbid impression is transmitted to the cord, suspensive of its central function. The efforts even of volition, which come from the brain, are no longer successful.

LOCAL PALSIES—PARTIAL PALSY.

General Observations.—Before we give the Reform Medical treatment for these various Palsies, we will describe *partial palsies*, or those only affecting some of the organs of sense, and the side of the face, the leg or arm.

The cause of these local palsies is more frequently situated in the course of the nerves, after they have quitted the cerebral mass, or at the ends, than anywhere else. If the cause of palsy be in the brain itself, or in the spinal marrow, then we generally have more than local palsy; either hemiplegia or paraplegia. But if

the nerves be affected in their course, after leaving the brain, or only at their extremities, then we generally have local palsy.

The most common partial paralysis, which affects motion only, is that of the face, and this chiefly arises from an affection of the "portio dura." When this partial paralysis occurs, it cannot be mistaken for a moment. The face is drawn to the opposite side, and the eye of the affected side remains wide open, while the other is shut. The consequence of this is, that the tears are not directed towards the inner canthus of the eye, but fall over on to the cheek. There is an inability to laugh, so that if the patient attempt it, he laughs "on the wrong side of the mouth." There is an inability to distend the cheek, and an inability to whistle or frown. If he frowns, he does it with only one "corrugator supercilli;" and as to whistling, he makes all sorts of noises out of the corner of the mouth. Sensation is, in this case, unimpaired. The "portio dura" being a nerve of *motion* and not of *sensation*, motion only is paralyzed.

This affection generally arises from cold, but not always. Very often the patient is deaf at the same time, and he has a discharge from the ear. This may be conceived, from the situation of the "portio dura;" indeed, it often occurs in persons who have been exceedingly deaf. Sometimes it arises from caries of the bones, and sometimes it has appeared to arise from an enlargement of the gland behind the ear, compressing the nerve. Sometimes this paralysis is evanescent, and if we apply a stimulating liniment, it soon disappears. It will disappear spontaneously. It disappears much sooner on stimulating the part. Occasionally, however, it is tedious and incurable. It *may* have no connection, because it may be external to the brain—external to the "foramen ovale;" but, in many cases, patients have fullness of the head, giddiness, sleepiness, and other symptoms, which clearly show that there is an affection of the head, as well as of the nerves. The "portio dura" may suffer compression, and become softened, within the head, as well as in the bones of the cranium, and after it has left those bones. It is by no means a trifling complaint, and very often *is* connected with a more serious affection.

Another form of local palsy is termed Anæsthesia, or a paralysis of the sense of touch. It is very rare, yet worthy of mention here. The best account we can find of it is a case which arose from cold, and is described in the III Volume of the Medico-Chirurgical Transactions.

The following are the principal circumstances which we have had occasion to observe relative to this case. The hands, up to the wrists and the feet, half way up the leg, are perfectly insensible to any species of injury, as cutting, pinching, scratching or burning. The insensibility, however, does not suddenly terminate, but it exists (to a certain degree,) nearly up to the elbow, and for some distance above the knee. He accidentally put one of his feet, some time ago, into boiling water, but was no otherwise aware of the high temperature, than by finding the whole surface a complete blister on removing it. No species of injury to a vesicated part of either hands or feet, is felt by him. The extremities are insensible to electrical sparks taken in every variety of mode. The cubital nerve, where it passes the elbow, communicates the sensation produced by pressure or a blow only half way down the forearm. He perspires much on the left side, just about the hip, but no where else. He is generally rather chilly, and the extremities are cold, except when he is in a comfortable room; in which case they are of the usual temperature of the body. The thermometer, however, rises to 101 degrees in the month. The hands are somewhat of a purple color. If he wishes to ascertain the temperature of any body, he is under the necessity of putting it to his face or neck, or the upper part of his arm. His skin seems to be more than usually sensible to the effects of heat. On putting his hand at the desire of a friend, into a pail of hot grains—which his friend assured him were not too hot, and (to convince him of it) previously thrust his hand and arm into them—there was a very extensive vesication produced. His hands are never free from blisters, which he gets by inadvertently putting them too near the fire; and he has met with several severe burns, without being aware of them; no degree of pressure is felt by him, but a blow produces a slight degree of tingling. He has a general uneasy sensation in the extremities, which warmth rather relieves. His skin, in general, heals very readily, after being burnt or scalded in the most severe way; and there is no fever; (as far as he has been able to determine,) nor any increased heat or throbbing during the process of healing. This seems to be also the case with some other parts of the body, which are not altogether insensible; for, a little time ago, he got burnt in the front of the patella; and, though there was a considerable slough separated in consequence, he suffered no pain, and little inconvenience during the cure. If the heat to which the insensible parts are exposed is moderate, vesication is not immediately produced. The part be-

comes red, and in a few minutes, but sometimes not till the lapse of an hour or two, is blistered. That a smaller than ordinary temperature produces vesication in this individual, seems to be ascertained by the circumstance, that exposure to the heat of a common fire gave rise to a blister on the knee, which was followed by the slough above mentioned, though the clothes which covered the part were not at all injured. Immersion in water at 120 degrees, produces no change in the affected parts; but exposure to the same temperature, at a common fire, speedily blisters. That degree of heat, is about the utmost which can be long borne by the hand, in ordinary circumstances, without pain.

Cold water, and warm water of every temperature, invariably appear lukewarm to him. Water at the freezing point produces no degree of sensation whatever; but when his hand is kept in it for some time, he feels a slight coldness at the end of the thumb. After his hand had been immersed in water of the common temperature, and was introduced into water of 32 degrees, he had some sensation of warmth. The cold produced by means of a mixture of snow, or ice and salt, communicates no sensation, except a slight chilliness in the thumb; and when this freezing mixture follows the use of water of the common temperature, it produces a slight degree of warmth. A solid body produces no sensation, whatever the temperature may be. The power of motion exists in the muscles of both hands and feet. With the former he can grasp pretty firmly; but, in holding any thing, he is apt to drop it, if his attention is called away. There has been of late a slight loss of substance in the hands. He can lift a chair, but cannot raise himself from the ground, by taking hold of any thing placed above him. The susceptibility of impression generally, as well as the muscular power, appear to be somewhat diminished. The functions are natural, and the pulse regular and moderate.

The next local palsy we describe is the paralysis of a limb.—The diseases of the nerves which give rise to this partial paralysis, are precisely the same, though different in *situation*, as those which give rise to hemiplegia and paraplegia. In some instances it is entirely mechanical compression. *Hemiplegia* may arise from the compression caused by a tumor on the *brain; paraplegia* from the compression caused by a tumor in the *spinal canal;* or the pressure of a bone that is fractured; and so may amaurosis (which is a partial paralysis) arise from the pressure of a tumor on the optic nerve. Any cause that will produce paraplegia or hemiplegia, will produce local paralysis when differently situated. Oc-

casionally this local paralysis arises from local inflammation of a particular nerve, and the inflammation may be of so intense a character, as to be seen after death; and, indeed, we may see ecchymoses. Sometimes there is softening of a particular nerve, even ulceration of it, and a decided effusion into its sheath. These are precisely the same things that we mentioned, as causes of hemiplegia and paraplegia. Tumors have frequently been found resting on particular nerves, and when there are these circumstances, (inflammation, softening, ulceration, and tumors,) there are often paralysis, violent pain, and spasmodic convulsive action of the muscles which these nerves supply.

We have described the various kinds of Paralysis and reserved the treatment for each under one head, as nearly the same course should be pursued in all cases of nervous debility or loss of sensation in any nerve.

Treatment.—In most cases, and particularly where the disease has arisen in aged or decrepit persons, the external application of stimulants will be highly proper; hence the parts affected, as well as all along the spine, may be rubbed several times a day with a flannel or a flesh-brush, impregnated with flour, or essence of mustard, or with the palms of the hand, and some kind of rubefacient, probably a strong alcoholic preparation of red pepper, and some of the essential oils, would be preferable. Warm bathing is a remedy which has been much employed in most cases of palsy, as an external stimulant. In all cases of palsy, whether one only, or several parts of the body are simultaneously affected, stimulants internally, as well as externally, should be used.—Those that would be ranked in importance, in the first class, are compounded by the formula, known by the name of "spice bitters." These should be taken freely in a suitable quantity, every four hours. Artificial means should be resorted to, to imitate natural dejections; and it is important that this point should not be overlooked.

The most salutary treatment yet to be mentioned, it is thought, consists in the regular courses of medicine. The vapor bath, the sudorific powder or the composition, and the lobelia emetics, conjoined, and acting simultaneously, produce that alteration or change in the system, so highly favorable to a restoration in this malady. Certainly the result of experiment places this mode of treatment in the most favorable estimation.

In palsy, the diet should be light, nutritive, and of a warm, aromatic nature. If the patient is able to walk, he should take

such daily exercise as his strength will admit; but if deprived of the use of his legs, he ought then to be carried abroad in a carriage, or on horseback; and frictions with the strongest stimulants should be frequently applied to the parts affected. Flannels should be worn next to the skin, and all exposures to cold, damp, moist air, carefully avoided. The influence of a warmer climate is frequently resorted to with marked indications of improvement.

In hemiplegia and pariplegia, we must seek out the cause and direct our attention to removing it. If it be produced by a fractured cranium, or if there be suppuration from a carious bone, means must be used to remove it, by a surgical operation. If the cause is of a congestive character—if the vascular excitement is great, we shall find it expedient to apply cold applications to the head and to employ our best diffusible stimulants such as the various preparations of Lobelia and Capsicum. Let the whole body, especially the spine and the extremities, be often bathed in the Stimulating Liniment we have mentioned in other parts of the work. This liniment freely and constantly applied, will do more good than all the *counter irritants* mentioned in the Allopathic authors.

On no account let the Reform Physician use the Strichnine, Opium, or the other narcotic agents of the old school, for they will hasten death. Electricity may be used with some success, in various cases, where there is torpor, and the disease is not caused by compression or obstruction of the brain, or alteration of its structure.

Paralysis will sometimes cease spontaneously when the cause is in the brain. If it arises from effusion, the fluid may be absorbed; and by our stimulating treatment, we may expedite its absorption. A clot of blood, too, may be absorbed.

In hemiplegia and in pariplegia, the palsied parts should be bathed with the Stimulating Liniment, and then a full vapor bath administered and this treatment continued for some time daily.—The flesh-brush and other methods of friction to the surface will be found beneficial.

Some of our best diuretics may be used with benefit in some cases, especially where there is any serous effusions. The Spirits of Turpentine, the Uva Ursi, Liriodendron Tulipif, (Poplar,) Balsam Copeva.

In facial palsy, or local affections, we must apply hot applications and fomentations, with liniments behind the ears and constitutional treatment to bring the system into a healthy state.

The following is excellent for enemas: Take cayenne pepper, one tea-spoonful; lobelia, two tea-spoonsful; add a pint of boiling water: after standing a sufficient length of time to extract the strength, sweeten with molasses, add a pint of milk and a gill of sweet oil. Let it be given warm, and as much of it as the patient can bear. This will excite action in the bowels and promote evacuations. *Salt* and *water* make a very good injection. We have seen patients in whom the fæces have been so hardened that instruments were required to remove them; in such cases nothing is more valuable than injections of this kind. It is very necessary in this complaint to use frictions; the parts must be rubbed for twenty or thirty minutes, two or three times a day. Where the feet or any other part swell, let them be frequently steamed over bitter herbs; this we have found very useful. When the disease is seated in one particular part more than another, stimulating plasters are very useful. None better than our common *strengthening plaster*, more particularly in consequence of the *capsicum* and *camphor* it contains. If the patient does not grow better under the above treatment, give the *alterative syrup*; this medicine acts as an alterative, and seems to improve that morbid or viscid state of the blood, which is probably one of the exciting causes of the complaint. During the use of it let the part be bathed with the *rheumatic drops*.

The following is an excellent formula for this disease:

R.—Anthemis nobilis (Chamomile,) Mac. Rac. (Black Cohash,) Serpentaira vir., (Virginia Snake Root,) Cyp. Pub., (Nervine,) Anethum foen Sem (Fennel Seeds,) each 1 oz.

Mix in qt. hot water, add 1 gill Brandy. Dose half wine glass full three times a day.

RABIES CANINÆ—HYDROPHOBIA.

Description and Causes, Etc.—This affection, derives its name from two Greek words—υδωρ water and φοβεω to fear.

But although the disease has its name from a dread of water, yet this dread of swallowing water, as well as other things, is seen in certain common nervous and other affections. People will take an antipathy to all liquids; and sometimes, in common sore throat, there is such a spasmodic disposition in the throat, that the

attempt to swallow excites great irritation ; and the recollection of it excites fear at the very sight of water; while the attempt to drink it is terrific. On the other hand, the fear of water—the fear of swallowing, is not universal in hydrophobia. Persons sometimes swallow very well in hydrophobia, and put their hand into cold water ; dogs will swim across a stream ; and some persons, it is said, drink quite well to the very last.

Some gentlemen, from observing redness and congestion about the air passages, and others from observing similar appearances in the alimentary canal, have ascribed hydrophobia to a morbid state of these parts ; but we think the extreme sensibility of the surface of the body, the extreme agitation on attempting any muscular effort, the convulsive movements that take place in swallowing—the spasmodic catching of the breath—even on touching the lips with liquid, or the application of cold air to the surface—the anguish and irritability of the mind (anguish not arising from *pain*,) the great suspicion, and at last delirium, all show something more than an affection of the lungs or stomach. Such symptoms as these indicate an affection of the nervous system. In tetanus there is no morbid irritability either of body or of mind.—There is only a spasm of the voluntary muscles ; and this, in all probability, arises from an affection of the origin (or termination) of the nerves, in the head or the spinal marrow. Such a state, is not necessarily inflammatory ; though occasionally inflammatory signs are found. But in hydrophobia there is no irritation of the voluntary muscles in general; but a morbid sensibility of the nerves of sense ; particularly those of touch, and of those running to the muscles of deglutition and respiration. In addition to this, the mind is altogether in a state of suspicion and irritability—showing that it is the centre of the nervous system, that is particularly affected. What it is exactly, it is impossible to say; but so far we may trace it. One cannot attribute it to the nerves; or to that part of the brain connected with the nerves of deglutition and respiration; because we see extreme suspicion of mind—extreme mental anguish ; and we see that many parts of the nervous system are affected.

The exciting cause of the disease, however, is well known. It is a secretion from the mouth of a rabid animal. It is said to be the *saliva* which is poisonous ; and it *may* be that fluid; but we do not know that it is *proved* to be the saliva, rather than the mucus. The saliva of the human subject is equally poisonous with that of the brute ; or, at least, it is *also* poisonous; for Magendie

says, that he inserted the secretion from the mouth of a rabid human being (that is to say, a person under hydrophobia) into dogs; and they became the subjects of the disease.

Dr. Hertwig says, that he inoculated fifty-nine dogs with diseased secretion from hydrophobic dogs; and that only fourteen took the disease. He states, that he made experiments with the blood; and found that it was equally poisonous with the secretion of the mouth. He says the saliva will act, in producing the disease, at all periods of the affection; and in twenty-four hours after death, if it be taken from the body, it will still give rise to it; but he says, that if the poison be swallowed, it is perfectly inert. The poison of serpents, we are told, may be swallowed with impunity.

Diagnosis.—The real character of the disease, is to be taken from the circumstance of the extreme sensibility of the surface of the body, and the extreme sensibility of the nerves of deglutition and respiration; so that any attempt at swallowing, the application of cold air to the surface, the application to the surface of a drop of fluid, whether warm or cold, if made suddenly (as by sprinkling)—even the circumstance of an insect crawling on the face or hands, or the slightest agitation of the bed-clothes; any of these things will produce a catching of the breath—a sudden inspiration—just such as we experience when we step into a cold-bath. The diaphragm descends—just as if cold water were thrown upon us. Contemporaneously with the descent of the diaphragm, there is a violent spasm about the larynx and pharynx; so that swallowing is impossible, and so likewise is breathing. The diaphragm will descend; but a spasm of the glottis occurs, and the air will not go down. The glottis will relax again, and a number of successive closures take place; and, at the same moment, from the fear of being choked, there is extreme anguish, and extreme terror.

Intolerance of Noise and Light.—Even noise and light will produce this. Not merely the circumstance of cold air blowing on the patient, but the mere draught occasioned by a pocket-handkerchief, or by waving the hand—so as to cause the air to come with full force against him—may produce this violent spasm; and not only so, but the mere reflection of a looking-glass will have the same effect. If a looking-glass be allowed to play before the eyes, or if a loud noise be suddenly made, this descent of the diaphragm, and this closure of the glottis, immediately take place. Bright colors will have the same effect as the use

of a looking glass—at least, when the disease has become very severe; nay, at length—from the recollection of what has been suffered—the very mention of swallowing will produce extreme agitation.

Every muscular effort, of whatever kind, has the same tendency; and if the patient be compelled to make an effort to swallow, when he really cannot, it will throw him, into absolute convulsions. There is extreme anxiety of mind and despondency; and the patient looks around him with an eye of suspicion. He has a great aversion to strangers; and the countenance is expressive of his anxiety and distress. We notice, in this disease, very frequent sighing. Breathing is not carried on in a regular uniform manner, but is altered. The patient is extremely restless; tosses about his hands; rolls his eyes; and whatever he attempts to do, he overdoes. Such is his agitation, that if he attempt to rise, he makes more effort than is necessary; or if he attempt to take anything into his hand, or to swallow, he dashes the cup to his mouth, and gets it all down at once.

Spurious cases of nervous fever, or nervous irritability, are very different than these. If the case be spurious, the difficulty in swallowing generally occurs far two often after the bite. A certain period (usually some weeks) elapses between the bite, and the appearance of the disease; but where persons have a difficulty in swallowing from mere nervous terror, it generally begins at an early period. There is much too early delirium and general convulsions; the agitation of the mind arising from fear, brings on a degree of insanity.

In the spurious form, again, there is generally no catching of the respiratory organs. The great feature of this disease is the sudden inspiration, as though the patient were plunged into cold water; and this produced not only by an attempt at swallowing, by the sight of water, and by *speaking* of water, but by a breath of cold air, or the crawling of an insect upon the surface, or by any sudden impression. Patients who only *fancy* they have hydrophobia, have a difficulty of swallowing; but they forget to have a catching of the breath. They are not aware that that is a symptom. They only think of the difficulty of swallowing liquids; and therefore that symptom only arises. They are not conversant enough with the disease, to know another remarkable symptom; and therefore, that never takes place; or, if it do, it is only a simple local affection, producing irritation of the organs of respiration. So characteristic of the true disease is this sudden but deep inspi-

ration, that when a paroxysm takes place during sleep, the person always awakes with a sudden deep inspiration. In the true disease, patients (in order to please their medical attendants) will make every possible attempt to swallow. They will say they cannot; but then they will try. They will make the greatest efforts, and succeed to a certain length, and very frequently succeed entirely; whereas, if a person have the *fancied* disease, he concludes it is quite impossible. He will not *hear* of such a thing; and considers it almost an insult to have it supposed that he can swallow.—In the fancied disease, the patient has not sufficient firmness of mind to make the attempt; and shudders at the very sight or name of liquid; whereas, in the true disease, patients will not only do this, but will even put their hands into cold water.

Dr. Watson remarks as follows, respecting the location of this disease:

"If I were asked to define the seat of this terrible disease, I should place it, without hesitation, in that division of the nervous system which comprises the excito-motory apparatus; the true spinal marrow, with its appendages of afferent and efferent nerves. Nay, I should go further, and say that it is the upper part of this apparatus, of which the functions are primarily and chiefly deranged; that the poison acts mainly upon the nervous arcs which pertain to the throat, and with which the eighth pair of nerves in particular is connected. There is nothing singular in this localization of the influence of a specific poison. The ergot of rye affects principally those arcs which belong to the uterus; cantharides, those which govern the muscular fibres of the bladder. It is true that the mental functions are remarkably modified, and that paralysis of the lower extremities occurs, in most instances of the disease. But neither of these phenomena is constant; and they simply illustrate, when they do happen, the facility with which any morbid state of the spinal cord may propagate its influence in either direction. Whether, in hydrophobia, the essential change be centric or eccentric, cannot be determined with anything like certainty; but it seems to me to be most probable that the sensibility of the afferent nerves of the fauces, of the skin, and of the air-passages, is altered or morbidly exalted; whence, upon the application of the exciting stimulus, the peculiar sighing dyspnœa, and the strangling dysphagia, are produced by a reflected influence through the central axis upon the muscles concerned in these actions. But, as I said before, the pathology of the excito-motory apparatus is, as yet, in its new birth."

Treatment.—We are most happy to announce to the medical world that there is a remedy, a radical cure for this dreadful disease. Notwithstanding all our Old School authors declare that there is no well authenticated case on record in which a hydrophobic person has recovered, yet this disease has been often cured, and may again be cured, by our Reform Medical treatment.—The following well authenticated case we extract from Howard's Practice:

"On the first of January, 1831, a mad dog came upon the premises of Joshua Clark, of Columbus, Hamilton county, Ohio, about seven miles from Cincinnati, after passing through the neighborhood; and was known to bite nine animals, viz: Five dogs, a cat, one cow, and two horses; all of which went mad; some within about thirty days, and the last, a year old colt, belonging to Joshua Clark, about the middle of June. Joshua Clark received a wound on the hand, on the first day of February, by the tooth of a mad horse, which belonged to himself, while endeavoring to drench it with medicine. The creature died the next day. He suspected no danger from the wound, as it was soon healed up.

"But some time in May he had some strange feelings, when on the water, being a fisherman by occupation. By the advice of some of his friends, he called on Dr. S. Tibbets, of Cincinnati, who gave him some of the third preparation of Thomson, which relieved him for that time. But several times in the month of June, he was seized suddenly with fits of trembling and a strange sensation of fear, when the wind blew, so as to cause the boat to rock on the waves; and he sometimes queried with himself, whether it was possible he could be afraid of the water; and that, at times, when no thought of hydrophobia occurred to his mind. He felt also, as if the rays of light, reflected from the waves when the sun was setting, sent through him sensations of peculiar horror, and he was sometimes obliged to go on shore and remain awhile to gain composure.

"These symptoms rather increased on the whole till the 10th day of July, when he felt much more indisposed than at any time before, and he was rapidly growing worse. Being at Cincinnati that day, he went up home in a skiff, and undertook to row; but soon found himself unable to endure the exertion or the sight of the water. He then lay down, was covered up, and rowed home by his companions. He retired to bed, but spent a dreadful night; a painful twitching of the muscles of the limbs, and lacinating pains darting from the hand which had been wounded up to

the breast and throat; the glands of which had now become very sore and swollen.

"He sometimes fell asleep, but was suddenly awakened by such frightful dreams as seemed to fill his soul with inexpressible horror. And all these symptoms were growing worse constantly.—In the morning his family were terrified at his condition, and all his friends concluded he had now got the hydrophobia, and thought it best that he should go immediately to Cincinnati, to obtain medical aid. Accordingly he started on horseback, but very soon found that he could not endure the motion of the horse. He was then laid down in a skiff, and covered up and taken down by his friends within about two miles of town, where passing a steamboat which was ascending the river, it produced such agitation of the water he could no longer endure the motion of the boat. He was then landed and went up the bank, and was about going into a blacksmith's shop occupied by his brother-in-law; but when he came before the door, and caught the rays of light from the fire, he suddenly started back in great distress; and it was not in his power to enter while the fire was in blast. He then came on foot, attended by his friends, to the house of Mr. Steel, his brother-in-law, in Cincinnati.

"His symptoms had now become so bad that all were nearly despairing of help; they supposed the botanic medicine, which he had taken some weeks before, had failed. Colonel M'Farland went to Professor Morehead, and related the case, who gave it as his decided opinion, that it was a clear and decided case of hydrophobia, and nothing could be done for him; and he did not think it worth while to go and see him, as there was no known remedy for the disease.

"Isaiah Clark, brother of the patient, went to Professor Cobb and related the case to him; he expressed the same opinion in every respect as Dr. Morehead.

"Dr. Tibbets was then sent for, who came, and commenced giving him the third preparation, which soon had the effect to allay in a good measure the excessive irritation of the nervous system; but such was the difficulty he labored under in swallowing, that administration by injections was chiefly relied on. The medicine operated freely, and he emitted from his stomach a great quantity of very tough and viscid mucus, which might be raised on a stick two feet, without separating from that which remained in the vessel; and much that passed from his bowels was of a similar consistency.

"After puking, his stomach settled, and he was steamed.—The perspiration was copious and free. He was washed off, and felt much more composed for a short time, and slept about an hour, when he began to be disturbed again by frightful dreams, and all the nervous and spasmodic affections which he had previously felt. The same medicine was given again as before with the same effect. Steaming, again, was followed by a short and quiet sleep; but the spasmodic twitching of the muscles of the legs and arms, was all the time visible to the spectators when they were uncovered.

"About twenty-four hours had been consumed in the two courses, before I saw the patient—being out of the city.—When I saw him first, he seemed composed in mind, but felt all the former symptoms returning; he was thirsty, and desired water, but could not take a swallow without violent shudderings of the whole system, and painful sensations; but none of these unequivocal symptoms of the disease were as strong this day as they were the first, before he took medicine; but he seemed to grow worse every moment till medicine was given again. And the same course was pursued for eight days in succession; in which time he passed through sixteen courses. His intervals of repose were now so much longer, that one course in twenty-four hours seemed sufficient; and the treatment was pursued at this rate for eight days more. He then passed a day and night taking small doses of medicine, which seemed to keep the disease in check without producing vomiting. In a few days more he went home, but continued to take medicine whenever he felt symptoms of the disease returning; taking a full course occasionally when smaller doses did not prove sufficient. Thus the dreadful malady seemed to wear off very slowly.

"About the first of September he began to grow so impatient and discouraged that he went to a German doctor, who boasted confidently of superior skill in curing hydrophobia. After taking his medicine for a few days, he fancied himself much better; but on taking a slight cold the old symptoms began to return, and his new medicine had lost its effect. He sent for his German doctor, but he could do no more. He was obliged, therefore, to resort again to the third preparation, which was still true to his trust, immediately giving relief. And until I last heard from him, which was some time in December, the evidences of a radic alcure grew stronger.

"I will remark, as I learned from Dr. Tibbets, that the pulse

when he first saw him, was very rapid, small, and irregular, and recognized with difficulty on account of the strong vibratory action of the tendons. Two hours after, when he was under the full influence of medicine, the pulse became full and strong, and numbered about forty in a minute; and this singularity was observable every day; after his intervals of repose, when the morbid symptoms were increasing, the pulse grew rapid, feeble and irregular, until medicine was given sufficient to check the progress of the disease; and when under the influence of medicine, and the morbid symptoms were least observable, it was full and strong, and numbered from forty to fifty in a minute.

"I will now notice several arguments, which have been made use of by the enemies of the Botanic System, to destroy the influence of this extraordinary cure.

"Dr. Drake, who had not expressed his opinion on the case until he had seen the result of ten days' treatment, felt himself at liberty to differ from those who had decided without this advantage; and assigned, as one reason for his opinion, the idea that the herbivorous animals cannot communicate the disease. He was then asked if Josiah Morehead, who died by hydrophobia under his own care, about two months before, had the hydrophobia. He replied in the affirmative; and added, the case of Morehead being under his own eye, he knew it to be a clear and unequivocal case; and differed not in symptoms, character, progress and termination, from hydrophobia. He was then reminded, that Morehead imbibed the disease by handling the hide of a cow that died mad; or rather, by rendering out the tallow of the same cow, he burnt his hand, which caused a bad sore that remained till he died; and this appeared to be the seat of infection; and it was never known that he had been exposed in any other way. The Doctor replied it was not known how Morehead imbibed the disease, but it was a certainty that he had it. So we would say in the case of Clark; if it were demonstrated that the herbivorous animals cannot communicate the disease, we do not know how he imbibed the disease, unless it were by the circumstance that his own dog while raving under the influence of the disease, jumped and snapped at him, at the same time blowing a full blast of breath and saliva, in his face, through a crack of his pen; which caused him to feel a strong sense of nausea at the stomach, and produced some blister-like eruptions on his face. But we cannot allow Dr. Drake any credit for arguments in this case, which he counted of no weight in the others where they were equally applicable. Another argument

assigned by the doctor was, that this case did not progress and terminate like hydrophobia; and there was no case recorded in any history, in which the progress of the disease had been stayed like this. But we cannot give him much credit for this argument, unless he will produce a record of some case to his purpose under his mode of treatment. We think it rather unreasonable that we cannot be permitted to prove that we can cure hydrophobia; except we first prove the disease to be *genuine*, by the fact of terminating in *death*. There is a very wide difference between our system and that of the mineral doctors in this respect; our chance of success would be materially diminished after death; while their's would remain just as good after death as before. But if death is to be the only criterion of the disease, we will venture to say that a genuine case of hydrophobia shall never occur, where our system is applied before the utter prostration of the vital powers, and is followed up with proper attention and perseverance.

"Dr. Cobb, without knowing that Mr. Clark was under the botanic treatment, expressed an opinion with much confidence, that it was a case of hydrophobia, when a gentleman informed him what treatment the case was under, and asked him what he would think should the patient recover. He replied, that he should be convinced that all who thought it to be hydrophobia were deceived.—Thus we see the ground they take would render it impossible, even for Omnipotent Power, to prove a cure.

"Wm. Ripley."

"P. S.—That it may be clearly understood what, and how much, is comprehended in this account, as a course of medicine, I will here state it more explicitly. Whenever the returning symptoms of the disease became evident, a small dose of third preparation was given, which always gave some partial relief, but of short continuance; then a larger dose was given, and soon repeated; next more was given by injection, and so on, when the operation was over, then steaming and washing finished the course.

"The medicine was not given with a very sparing hand; the composition tea and valerian were used freely; and I judge from four to six ounces undilnted third-preparation were used in every twenty-four hours during the first eight days.

If a patient is attacked suddenly with a paroxysm, a tablespoonful of antispasmodic tincture should be given without delay, and an equal or double the quantity of the same, added to half a pint of warm water, administered by injection. This will produce an immediate and powerful effect upon the system, and

generally allay the convulsive tremors. The injection may be repeated, if necessary, and in the meantime heated stones or bottles of hot water wrapped in damp cloths should be placed at the feet and sides, and preparations made to administer the vapor bath.—This should be followed by an emetic of lobelia, and all the requisites of a full and thorough course of medicine.

If the wound puts on a livid, or inflamed appearance, it should be washed with rheumatic drops or tincture of myrrh and poultices applied, as in any other sore.

The mouth should be frequently washed, and the throat gargled with bayberry tea, in order to remove the poisonous saliva, and vitated secretions.

The courses may be administered every twelve or twenty-four hours, until the disease is completely removed, and in the intervals cayenne, bayberry, and scullcap tea should be freely employed. The stimulating tea will answer an excellent purpose.

Some physicians regard scullcap as a specific in hydrophobia, but we should be disposed to use it merely as an auxiliary remedy.

The vapor bath of itself is said to be an invaluable agent in the treatment of hydrophobia. M. Buisson read an interesting paper on the subject before the Paris Academy of Arts and Sciences, in which he gives the particulars of his own case. He was called to a woman who was laboring under hydrophobia, and some of the poisonous saliva coming in contact with an ulcerated sore on one of his fingers, he contracted the disease himself. He says, "The ninth day after the accident, I suddenly felt a pain in my throat, and a still greater pain in my eyes; my body seemed to have become so light, that I fancied I could leap an immense height; and the skin on my ulcerated hand became so acute in feeling, that I thought I could have counted every hair on my head with it without seeing. The saliva was continually rising in my mouth, and not only the sight of shining objects, but the very contact of the atmosphere, became painful to me. I felt a desire to run about and bite every animate and inanimate object but my own fellow creatures; in fine, I experienced great difficulty of breathing, and the sight of water was more distressing to me than the pains in my throat. These effects returned at intervals of five minutes from each other, and it appeared to me that the pains originated in the diseased finger, and extended as high as the shoulder."

"M. Buisson," says a London Medical Journal, "concluding from these various symptom that he was suffering under hydro-

phobia, resolved to make an end of himself by suffocating himself in a vapor bath. With this view he raised the heat to one hundred and forty degrees of Fahrenheit, but was delighted no less than surprised, to find that all his pains disappeared. He went out of the bath completely cured, and made a hearty dinner, and drank more freely than was usual with him. He adds that he has treated more than fourscore persons, who had been bitten by mad dogs, in a similar manner, and that they had all recovered, with the exception of a child seven years old, who died in the vapor bath he was administering. The writer prescribes for all persons who have the misfortune to suffer from the bite of rabid animals, a certain number of vapor baths, and violent perspiration every night, produced by covering themselves with blankets, with a feather bed above them; this perspiration to be aided by drinking copiously of hot decoction of sarsaparilla. He concludes by remarking, that those animals in whose case madness most frequently exhibits itself, as if spontaneously, such as dogs, wolves and foxes, are never liable to transpiration."

Without hazarding the application of the term *supererogation*, we are free to say, that this most formidable of all diseases that has apparently hitherto resisted every kind, quality, and quantity of treatment since its introduction into the world, (and it is of very ancient origin,) is safely controlled by the Thomsonian remedies, if advised in suitable season. The strongest preparations of lobelia should be given with an unsparing hand. The vapor bath should be brought to bear upon the patient as soon as practicable, as an important auxiliary, and the steamings should be frequent and protracted. No definite rules can be laid down with regard to the quantity of medicine that would be necessary to be given in hydrophobia, but it is very evident that the influence of lobelia must not be suspended, until the patient is free from danger.

From these directions, then it may be inferred that *full* and *thorough* courses of medicine must be repeated every six or eight hours—in other words, one protracted course must be put in requisition till this terrific disease is subdued.

To obtain a local action upon the part where the virus has been introduced, the pulverized seeds of lobelia should be made up in the third preparation, and applied in the form of a poultice, and renewed every two or three hours.

EPILEPSY—FALLING SICKNESS.

This fearful suddenness is expressed in the name of the disease, Επλαμβανω a seizure, an abrupt invasion. The ancients, among whom the complaint was well known, superstitiously ascribed it to the malice of demons, or to the anger of their offended deities.—If a person was seized with epilepsy in the forum it was considered an ill omen, and the meeting was at once dissolved, and all public business suspended for that day. Hence the disease was called *morbus comitialis*. *Morbus qui sputatur* was another of its names, because those present were accustomed to spit upon the epileptic man, or into their own bosoms; either to express their abomination, or to avert the evil omen from themselves.

With regard to the causes of the disease, we may first mention a certain hereditary predisposition. This is shown, perhaps—not by brothers and sisters, and predecessors (uncles and aunts, fathers and mothers, grandfathers and grandmothers,) having had this disease, but by their having other affections of the nervous system. The same state of the nervous system will frequently not produce the same disease—one may have epilepsy, and another some other nervous affection. When, however, these things occur in different generations, we may class them together, and consider them as the development of an hereditary predisposition. We continually see, in females, something wrong in the nervous system; but it does not produce the same effect in all. Some will have one disease, and some another.

Epilepsy sometimes exists in chronic hydrocephalus, and various other diseases of the head; but we frequently see it in the best formed head. There is a predisposition to it, indeed, from any cerebral disease whatever. Whatever disease may exist in the brain, the person so affected is very liable to have epilepsy. The same state which produces one disease of the brain, may (either by its intensity, or by extending to other parts) produce epilepsy. Very often, however, the predisposition to this disease is inexplicable. A person is seized with an epileptic fit from some circumstance which will not produce it in another; and yet we may be able to discover no difference between the two individuals. It is the same with all other diseases. We see a predisposition, or an indisposition, to them, unconnected with external circumstances. We cannot tell why, for example, one person will take a contagious disease, or become affected the moment he is exposed to it,

while another equally exposed escapes; and so it is, frequently, with regard to epilepsy.

If the predisposition be very strong indeed, then the slightest exciting cause will produce it—such as will scarcely more than quicken the pulse in another person. It has followed tremor; we find many cases of epilepsy, evidently ascribable to extreme dread. Injuries of the head (not in *one* part merely, but *any* part) will produce it. The suppression of habitual discharges, whether natural or artificial, has the same effect; and so also has the suppression of irritation. It will arise in females from a suppression of the menses; and in males, from the suppression of an hæmorrhoidal discharge which has become habitual. It arises from the cessation of a mere irritation—for example, from the cessation of an accustomed cutaneous disease without discharge. The cessation of gout will produce it; and also tumours, especially if situated on the head. These causes, will, sometimes give rise to phrenitis. The presence of the tumor produces inflammation of some particular part, so that epilepsy occurs; or the removal of the tumor causes a greater quantity of blood to be thrown on the brain; and thus the disease is induced. It occasionally takes place in violent fever. In fever, the brain is frequently in a state of great excitement; and epilepsy occurs. Sometimes, among other causes, it has been excited by worms in the intestines or stomach, by teething, and even by a stone in the bladder. Irritation of any part of the body whatever, if it amount to a certain point, and the person be predisposed to the disease, may produce epilepsy. In the "Edinburgh Medical Essays," there is mentioned an instance of the disease being produced by a small hard body in a nerve, at the lower end of the "gastrocnemius externus" muscle. The disease had existed twelve years; but on this body being removed, it entirely ceased." It is also produced by inflammation of the membranes of the brain. Poison will produce it; mineral poisons (lead, for example,) and all the tribe of vegetable poisons, will give rise to it. Small-pox will also produce it; it is common for children, at the period of the eruption of small-pox, to have epileptic fits. Dangerous hæmorrhages, may produce it. When a person is almost expiring from hæmorrhage, the collapsed state of the brain; from the want of blood, excites convulsions. In some, sexual intercourse will produce it. It is said that Napoleon had epileptic fits on such occasions—not on *every* occasion of the kind; but at periods of particular excitement. Imitation will produce it, especially in females. If they see it in others, they are prone to fall into the same state.

The causes which give rise to epilepsy are blows, wounds, fractures and other injuries done to the head by external violence, together with plethora of the vessels of the head, lodgments of water in the brain, tumors, concretions, polypi, and a deformity in the shape of the bones in any interior part of the skull. Epilepsy has also been known to arise from an affection of the spinal marrow; and it is to inflammation in that part, of a more chronic form, that those shaking palsies, which are attended with pain, have been imputed. Violent affections of the nervous system, sudden frights, fits of passion, great emotions of the mind, frequent intoxications, acute pains in any part, worms in the stomach and intestines, teething, the suppression of some long accustomed evacuation, too great emptiness or repletion, and poisons received into the body, are causes which likewise produce epilepsy. Sometimes it is hereditary, and at other it depends on a predisposition arising from a mobility of the sensorium, which is occasioned either by plethora or a state of debility.

Among the *exciting causes* of epilepsy, fright is conspicuous. And any strong *mental emotion* is apt to produce the fit in a person who is already subject to the disease. This fact alone would be enough, to forbid our ascribing the paroxysms exclusively to an affection of the spinal cord. Bodily pain; manifest and great disturbance of almost any of the principal functions of the body, may act also as exciting causes. Sometimes the cause is obvious; sometimes it is quite inscrutable. If the attack occurs every night; Dr. Bright thinks it may be attributed to the "congestion" of sleep, if it takes place at monthly intervals in women, we may "often trace it to nervous irritation in sympathy with the uterus: and when long periods have intervened we may usually trace each distant paroxysm to the repetition of some excess, or to a neglected state of the bowels." In these latter cases the epilepsy is of the sympathetic or eccentric kind; the irritation being seated in some part at a distance from the nervous masses in the stomach, or intestines, or uterus.

Diagnosis.—In the fit, the countenance is ghastly and pale, or perhaps of a bluish red; it is sometimes sallow. The lips are livid; the neck and the cheeks are much swollen; and, perhaps, the whole body is bedewed with sweat; but especially the head and cheeks. There is a foaming at the mouth; and generally the tongue is bitten. There are universal violent convulsions, horrid grimaces, a rolling of the eyes, and dilation of the pupils. Sometimes it happens that the urine and fæces are discharged involun-

tarily—the urine most frequently—and occasionally there is a discharge even of semen, with or without an erection. The hands are generally clenched, in the fit; and the heart palpitates strongly. The pulse is quick; and the respiration is short, deep, and irregular.

When the patient wakes from the state of sopor, he has generally no recollection of what has passed; and perhaps, therefore, there is no suffering. The want of *recollection* of suffering, however, is no proof that there has been *no* suffering; for we have all suffered enough in cutting our teeth, and yet we know nothing of it now. So it may happen respecting more recent events. The fit *may* be attended with more or less suffering; for persons do not suffer, in general, when they are hung; although they may struggle, and hang so long as to be insensible, and almost dead. There is an account, in Lord Bacon's works, of a person who was hung, and all but killed; and yet he did not suffer. From a short account written by Cowper, the poet, it appears that he three times attempted to commit suicide; and one of these attempts was by suspension. The account was written by himself; and was found among his manuscripts. It is very scarce—on account of its having been bought up. He there mentions, that he suspended himself over his chamber-door, in the Temple; and became perfectly insensible. He only recollected a flash of light appearing before his eyes. His weight at last caused him to drop on the floor, where he was found; and, after a time, he recovered. He says that, although he was thus in the jaws of death, and had become perfectly insensible, yet he had no previous suffering inthat state. It is probable that there is no sufering in epilepsy.

The convulsions of epilepsy may last from a moment, to fifteen minutes or more; and sometimes they recur after they have ceased, before the stupor is over. The stupor or coma, is generally complete, both during the convulsions, and for some time subsequently; but not always. This, therefore, is the character of epilepsy—a sudden attack of convulsions of the voluntary muscles, together with insensibility—the insensibility continuing after the convulsions have ceased.

Sometimes, before the fit, there is a warning; occasioned by a sensation of tickling, or crawling, along the surface of the body. There is a sensation as if fluid were creeping from the fingers, or from the thighs, towards the trunk; and sometimes as though a spider or flea were creeping over the skin. When it appears like

fluid, it is generally like *cold* fluid. This has been ascribed to a sort of rush of air or wind, or has been called "aura;" and, being connected with the epilepsy, it is called "aura *epileptica*." It does not follow the course of particular nerves. It appears to reside in the skin; and there is certainly no connection between it and the neurilema of the part.

It will sometimes happen that there is decided insensibility *before* the convulsions take place; and that *during* the convulsions the person becomes more or less sensible. This is one form in which the disease appears. Occasionally patients have no convulsions at all;—they will simply fall down in a state of insensibility, and rise up again without knowing what is the matter with them. Occasionally, instead of these convulsions occurring throughout the body, they are confined to one side; and sometimes they are still more partial;—being confined to one extremity. Sometimes, instead of convulsions, there is mere tremor of the body; or a part of the body will shake violently. Occasionally, during the fit, there is a delirium. The person shows that he is not insensible; but, instead of being insensible, he is in a state of violent delirium—apparently in an alarming condition; although in general there is no danger at all. Sometimes patients have this delirium on recovering from a comatose state. Occasionally the disease assumes the form of partial tetanus; one-half of the body being in a state of the most intense spasmodic rigidity.

We may distinguish epilepsy from hysteria, by there being, in most cases, a complete loss of sense; by the absence of globus hystericus, laughing, crying, sobbing, or shaking during the convulsions; and the absence of delirium. Occasionally, hysteria is combined with epilepsy, and then globus hystericus is present; but if it do exist, it is only in a slight degree; and if it exist in no more than a slight degree, we are justified in considering it a case of hysteria, rather than epilepsy. If there be globus hystericus, all the other symptoms of hysteria will be present as well; laughing, crying, sobbing, and perhaps a copious discharge of very limpid urine. The best mode of making the distinction, is not to depend upon one system, but to take a general survey—to remember that in epilepsy, there is usually a *complete* loss of sense; and that, in hysteria there is only an *incomplete* loss of sense; and, above all, that the fits do not come on regularly before convulsions. Patients will become sensible; and then, in the midst of their sensibility, the disease begins again; whereas epilepsy generally goes on in a pretty regular manner.

If the cause be evident, and is of a temporary and removable nature, our prognosis would be favorable; but if we cannot discover a cause for it, but see, (at the same time) that the cause is not of a temporary nature, or within our power to remove it, then our prognosis should be unfavorable. If we discover the cause, and find it cannot be removed, still of course our prognosis must be bad. The disease, altogether, is one of the most intractable we can have to treat.

Treatment.—As anthelmintics, the worm-seed given in teaspoonful doses, or the expressed oil has been found very useful.—The bark of the root of the yellow poplar and the male fern, are reputed excellent; and in all preparations given for the expulsion of worms, bitter root should be mingled, to act on the lower bowels and excite dejections. To prevent a recurrence, all kinds of food which might produce a predisposition should be strictly forbidden. Children frequently abuse themselves by their indulgence in the too liberal use of crude and indigestible food, such as unripe fruit, half-cooked diet, raw turnips, green corn, etc. Doses should ever be regulated according to age, condition, and circumstances attending the patient.

When they proceed from teething, that part of the gum over the tooth, or teeth, which appears to be tumefied and inflamed should be immediately scarificed, the bowels kept open by warming medicine and emolient clysters, and the feet bathed in warm water.

When cases of epilepsy occur without any symptom of direct pressure on the brain, and there is occasional sickness attended with flatulency, disturbed sleep, and other marks of embarrassed digestion, lobelia emetics should be freely given, followed by gentle aperient tonic bitters.

Where there is great prevalence of acid from the imperfect digestion of vegetable food, and the bowels at the same time confined, the subcarbonate of potash and magnesia may be very advantageously employed, in conjunction with golden seal and bitter root.

In the idiopathic epilepsy, the cure consists in avoiding the occasional causes, and in removing or correcting those which predispose to it.

The occasional causes which are to be avoided, are over-distension, turgescence, intoxication, fits of passion, and all other emotions of the mind; and as the disease is confirmed by repetition

and habit, so the avoiding the frequent recurrence of it is of the utmost importance.

It is a fact well supported, that in some instances the disease has been found to continue from custom alone, after the original cause had long ceased to act. In such cases, our endeavors should be exerted to make nature discontinue this custom if possible.—When an attack can be foreseen, no medicine, perhaps, under such circumstances, will be more likely to prevent an epileptic fit, than a lobelia emetic given about an hour before its approach.

In some cases of epilepsy, the patient lies in a stupid state after the paroxysm of convulsion has ceased, owing doubtless to a violent determination of blood to the head—his breathing is stertorous, with foaming at the mouth, and the pulse full, hard, and beating one hundred in a minute. In such cases, the first attempt should be directed to equalize circulation; hot bricks are to be applied to the feet, cold applications to the head, composition and No. 6 given internally, and soon followed by an emetic. Enemas should also be given.

When the predisposition is owing to a state of debility, which is sometimes the case, we are to obviate and prevent its effects by advising the patient to breathe a pure air, to make use of a generous diet, to take daily exercise adapted to his strength, particularly on horseback, and take freely of the tonic bitters in which should be combined a liberal quantity of nerve powder. It must not be forgotten in the general treatment of this disease, that the frequent courses are of the most essential importance.

It has been observed that the epileptic paroxysm occurs chiefly at irregular periods, and is for the most part of short duration.—There are, however, some instances on record of a singular exception to this rule in both cases. For it has occasionally lasted for two or three days with little or no remission. It has also returned at stated times, and with great frequency; with the revolution of the morn, or even of the night; in one instance six times in a single day; and in another, on the revolution of the birth-day of each of the patient's parents. In a highly nervous temperament it is not difficult to account for such returns, since the dread of its return alone, when it has once established a circle of action, will form a sufficient cause of irritation. In a few instances it seems to have been hereditary; and perhaps in an equal number, congenital, appearing soon after birth, and mostly produced by a fright of the mother during pregnancy. Hildanus gives an example in which a fright of this kind was occasioned by the presence of an

epileptic patient when suddenly attacked with a paroxysm; and other medical records narrate examples of a like effect on a sudden rush of a hare, or some other animal, against a pregnant woman.

Many persons habitually disposed to epilepsy are attacked immediately on waking in the morning from a sound sleep, when we may be inclined to think they would be at least liable to such surprise. Dr. Cullen admits that he finds a difficulty in explaining this curious fact. But when we reflect that epilepsy is a disease of irregular action, chiefly in a debilitated system, depending, where there is a confirmed diathesis, upon whatever may disturb the balance of perhaps any of the circulating fluids—and that this balance may be disturbed either by too much as well as too little excitement; when we reflect, moreover, that during sound sleep there is always taking place a considerable accumulation of sensorial power, and may at times be an excess of it—we shall no longer be at a loss to account for an adequate cause of this very singular phenomenon.

The general mode of treatment proposed for the last two diseases described, will apply to the present. The two-fold intention is to remove, as far as we are able, the exciting cause, and to allay the habitual irritation of the nervous system.

The diet in epilepsy should consist of such things as are light, nutritive, and easy of digestion, taking care to avoid whatever is apt to prove flatulent. During the intervals the patient is to keep himself as cheerful and tranquil as possible, carefully guarding against all violent passions or other emotions; and he should take care never to put himself in a hazardous situation, lest a fit should happen to attack him at that period.

When it is present, due care must be taken to prevent him from bruising himself in his struggles; and especially that he does not get his tongue between his teeth. Rubbing the nose, temples, and pit of the stomach with æther, may possibly help to abbreviate the fit by its action on the olfactory organ.

A similar degree of epilepsy is where the sensibility and irritability remain, but there are spasmodic contractions of the muscles; hence we see many persons affected with twitchings of the face. There are also certain spasmodic pains that come on by paroxysms, which seem likewise of the epileptic kind.

When any of these arise as sympathic affections, they are only to be cured by removing the primary disorder upon which they depend; but where they take place independent of any other dis-

case, they are to be treated in the manner just recommended to be pursued in the cure of epilepsy.

No other remedy is so efficacious as the anti-spasmodic tincture of our Pharmacopœa; and if the patient has warning sufficient to take a dose of this preparation before the fit, in most cases it will be prevented. We have known numerous instances where this course has kept off the fit for many months, and in others perfect cures effected by the use of this article alone. If the fit is on, let this remedy be administered by enema, and it will shorten the duration of the paroxysm, and afford great relief.

During the epileptic fit, the patient should be prevented from injuring himself by his struggles; and if his tongue is protruded, a piece of wood, or roll of cotton, should be placed between the teeth, to prevent it from being wounded. The head and shoulders should be elevated, as in apoplexy, and every thing removed from the neck which is liable to compress the veins. If the patient is a female, her dress should be loosened about the waist. If the fit does not immediately subside, the anti-spasmodic tincture may be given in the dose of two or three tea-spoonfuls, and the same treatment pursued which is recommended under the head of *convulsions*. Frictions of the skin, with pepper-sauce, or vinegar and cayenne, will also be beneficial.

Epilepsy generally requires the administration of thorough *courses*, and these may be administered once a week, or oftener, attending meanwhile to the diet, and other intermediate treatment. The stomach should never be overloaded, as this, alone, is sometimes the cause of an epileptic attack. If the bowels are costive, it will be necessary to administer an injection once a day. The cold bath, in some form or other, should be used every morning, as this will serve to invigorate the constitution. The lobelia pills, scullcap, or alterative mixture, may be beneficially employed between the courses, as a part of the intermediate treatment. Wormwood tea, also, though disagreeable to people generally, is recommended by those who have tried it, as a valuable remedy.

When the disease is ascertained or believed to be of the eccentric kind, we must search diligently to find the seat of the distant irritation, in some disturbance of function; and apply our remedies accordingly. The irritation may we found, we have already intimated, in almost any organ of the body. Painful or irregular dentition is perhaps one of the commonest of the eccentric sources of epilepsy. Sometimes the attacks are attended with symptoms of disease in the liver; slight yellowness of the skin,

uneasiness and tenderness of the right hypochondrium, and lowness of spirits. In such a case we must rectify that state of the liver.

It is well to remark here, as in the treatment of various other forms of disease, that the indications of cure vary according to the cause which occasions the disease, so far as we can know that cause. When it is sympathetic, and arises from worms and any other internal irritation, medicines must be directed to relieve this state of the system.

Where we have aura epileptica, we may frequently stop the fit by putting a ligature between the part from which it arises and the centre of the body. Where the stomach is at fault, the emetic must be administered. If there is reason to believe the fits are produced by suppressed menstruation, we must give emenagogues. So of any other suppressed evacuation ; we must relieve the cause,

We consider this disease incurable when it arises from a lesion of the brain or spinal marrow ; but where dependent upon almost any other cause it can be cured by our treatment. Where the disease arises from imitation, or mental causes, we must administer to the state of the mind. This disease once pervaded a whole school in Holland. It was cured by making an impression on the mind. The boys were all arranged around the room, and were told that the first one who fell in a fit should be flogged. This put a stop to the disease.

There are other affections that depend on habit, sympathy and mental derangement, that may be cured by some sudden emotion of the mind, such as fear and joy.

There are some cases in which the patient is plethoric, or of full habit, and not debilitated. In such, cathartics may be administered with propriety, though in most cases we shall find that the bowels will be better acted on by enemas composed of some mild tea, with a little of the anti-spasmodic preparation in them.

We have cured two cases by simple constitutional treatment, with the Lobelia and Nervine, and external application of stimulants. Tonics are indicated in most cases. The shower-bath, and other means to produce a healthy action in the skin, are also beneficial, and indispensable in most cases.

Some have recommended nostrums and specifics for this complaint ; but it must be evident to all, that a form of disease which has so great a variety of causes, and that involves so great a number of organs, must be treated very differently, and requires great

discrimination and close study to find out the cause, in order to apply the proper treatment.

As in most cases there will be found a debilitated state of the body, bathing and sponging the whole body at night with warm water and in the morning with cold, will be proper. The surface must be particularly attended to, and healthy cutaneous action induced.

Prof. Jones, in his late work, gives quite a prominency to *macrotin*. He says, this should be given in from one to two grain doses twice a day, and gradually increasing until its specific action is discovered.

The root of the peoniai officinalis, (peoney root,) is a valuable remedy.

CHOREA—ST. VITUS'S DANCE.

Description and Causes.—This form of disease derives its name from the Latin Chorea—*a dance*—from one of the most striking symptoms. Its other appellation is derived from the fact that certain women affected with this disease went annually to the Chapel of St. Vitus, near Ulm, in Germany, where they danced night and day, till they dropped down exhausted. They then remained well till the following May, when the disease returned.

Chorea Sancti Viti is occasioned by various irritations, as teething, worms, acrid matter in the bowels, offensive smells, poisons, etc. It arises likewise in consequence of violent affections of the mind, as horror, fright and anger. Occasionally it depends upon an excessive impulse of blood in the brain, and in such cases it is greatly aggravated by whatever increases the action of the heart, and of course relieved by means that lessens this. In many cases it is produced by general weakness and irritability of the nervous system, and in a few it takes place from sympathy at seeing the disease in others, or by imitating them; hence it not unfrequently spreads in public seminaries, particularly among girls, if its progress is not checked by separation.

The fits are sometimes produced by a coldness of the feet and limbs, or a kind of tingling sensation that ascends like cold air up the spine; and there is a flatulent pain in the left hypochondrium, with obstinate costiveness. At other times the accession begins with yawning, stretching, anxiety about the heart, palpitations,

nausea, difficulty of swallowing, noise in the ears, giddiness, and pains in the head and teeth, and then comes on the convulsive motion.

The tendency of this disease is constitutional. I do not know that it is hereditary; because adults, frequently, cannot tell whether they had St. Vitus's dance when they were young or not but it is very common to see two or three children in a family have it;—not at the same time, but at different periods. It affects all sorts of children;—those who are pale and sickly, and those who are ruddy. It frequently affects those who are otherwise in perfect health, and generally there is no obvious cause, either predisposing or exciting. All I can make of it is, that it is a morbid excitability of a certain portion of the centre of the nervous system, (the "medulla oblongata," or spinal marrow,) with which the nerves of voluntary motion are connected; but not a sufficient irritation to produce that violent action which characterizes tetanus.

The proximate cause, is seated in the head, as well as the spinal marrow; for the very highest nerves are affected. The eyes roll; the very highest muscle of the body (the "corrugator supercilii") is affected; the countenance is fatuous; and the mind is frequently a little impaired. Now and then we have constipation, and now and then headache and throbbing; but these form only a very small proportion of the cases.

There is a speculation of some of the French writers respecting the seat and nature of chorea so ingenious, that we cannot refrain from mentioning it.

It is affirmed by certain modern physiologists, as you may know, that one of the functions, the principal office indeed, of the *cerebellum*, is to preside over and regulate the faculty of locomotion; to keep the muscles in due subordination, as it were, to the will. No voluntary movement, almost, can be executed without the combined and consenting action of many muscles; it is the business of the cerebellum, they say, to maintain this consent and community of purpose; to prevent any mutiny of individual muscles, and to make them unanimously co-operate in producing a given movement. How far this doctrine is true, we do not intend to inquire: but supposing it well founded, then they very ingeniously assign the cerebellum as the seat of that change, whatever it is, which gives rise to the phenomena of chorea. And it is most certain that the irregular movements by which chorea is characterized can neither be considered as the effects of imperfect

paralysis, as some have stated, nor of convulsion, in the proper sense of that word, as others have asserted; but rather as consequences of the want of due harmony and agreement between the various muscles, which should combine to produce the desired state either of rest or of motion. There is a defect of the requisite association in the action of the different muscles; and it is in this sense that chorea has been denominated *insanity* of the muscles. There is a certain portion of the brain which ministers to the intellectual functions; there are certain altered states of that portion, which lead to mental aberration; the persons so affected form false judgments; cannot associate their ideas aright. So also there is a certain portion of the encephalon which presides over the locomotive functions; and there are altered states of *that* portion, which lead to a loss of the due association of muscular contractions. That portion is the cerebellum. Such is their theory; and it is a very plausible and pleasant, but withal an unsatisfying theory.

The predisponent cause of this disease is an irritability of the nervous system chiefly dependent upon debility, and particularly a debility of the stomach and its collatitions organs. Most of the diseases of children are seated in this quarter; and it is from this quarter therefore, that chorea commonly takes its rise, and shows itself in an early period of life; the ordinary occasional causes being bad nursing, innutritious diet, accumulated fæces, worms or some other intestinal irritant.

About the age of puberty there is another kind of general irritation that pervades the system; and where this change does not take place kindly, which is frequently the case in weakly habits, the irritation assumes a morbid character, and is exacerbated by a congestive state of the vessels that constitute its more immediate seat: and chorea takes its rise from this cause.

In effect where the predisponent cause of an irritable state of the nervous system is very active and predominant, a local or temporary excitement of any organ, and almost at any period of life, by increasing the irregular flow or disturbed balance of the nervous fluid, will give rise to the convulsive movements of chorea; and hence it is that we find it so frequently united with a hysteric diathesis. On this account it has been produced by a fright, by a wound penetrating the brain through the orbit of the eye, by an improper use of lead, mercury or some other metal, and by suppressed cutaneous eruptions.

Diagnosis.—Chorea is characterized by irregular and uncon-

trollable movements of portions of the body, or of the whole of it, rarely the latter. Sometimes one-half the body is affected; and it has been noticed, that the left suffers more frequently than the right. In such case, it would seem probable, that the opposite hemisphere of the brain is concerned. At other times, the muscular motions are limited to certain parts—as to the face, one arm, or to separate muscles. The motions are of the most strange and fantastic character. When limited to the face, the muscles are in constant motion, so as to induce the most singular grimaces and contortions; the articulation is also affected at times, so as to occasion stammering—which has, indeed, been defined—"a St. Vitus's dance of the voice;" and, occasionally, the respiratory muscles, and those concerned in deglutition, are implicated. At times, too,—it is affirmed—the urine and fæces are passed involuntary.

The senses and intellect are commonly unaffected; but when the disease persists for a long time, it is apt to render the individual fretful and capricious; and, occasionally, the intellectual faculties are impaired to such a degree as to threaten idiocy.

The nutritive functions are considered by many to be unconcerned, but there is, unquestionably, in this disease, as in most cerebral affections, an unusual degree of torpor in the digestive actions.

It is proper to state, that the symptoms are less marked, and frequently entirely suspended, during sleep, while the brain is occupied in its own acts: upon the same principle, any severe mental emotion will suspend the symptoms. A case is given by a distinguished observer, in which they were suspended during a fit of passion.

At times, the disease comes on suddenly; but, at others, there are premonitions. The patient exhibits evidences of great irritability of temper, with disordered digestive function; and, at times, palpitation, and other nervous symptoms—twitching of the muscles of the face, arms, or legs, for example.

Its duration is extremely uncertain; sometimes not longer than a few days; at others, it continues for months and even years, and does not finally disappear, until some great evolution takes place in the organism—as at the age of puberty.

Generally, the disease eventuates in health; but, at times, in some other of the neuroses, epilepsy especially. Fortunately, it is a good deal under remedial influence, and is not commonly very obstinate.

It usually begins with slight twitches of a few muscles in the

face, or in one of the extremities; and by degrees the spasmodic action becomes more decided and more general. All the voluntary muscles are liable to be affected by it. Those of the face seldom escape. The features are twisted into all sorts of ridiculous forms; you might suppose that the patient was what is called pulling a face, or making mouths at you: but their is neither mirth nor mockery in the contortion; it is a convulsion. It is succeeded by a vacant look, and then it begins afresh. The disease occurs much oftener in young girls than in any other persons. If you ask the patient to put out her tongue, she makes sundry attempts to do so before she can accomplish it; and then the tongue is suddenly thrust out, and as suddenly withdrawn, and the jaws snap together as if she were resolved that you should have as short a glimpse of it as possible. She writhes and contorts her shoulders. She cannot keep her hand or arm half a minute in the same position. When at meals, she desires to carry her hand to her mouth, it is arrested midway, and suddenly pulled back again, or pushed off in some other direction; and it is only after many deviations and fruitless efforts that she succeeds. The lower extremities are equally affected. When the patient intends to sit or stand still, her feet scrape and shuffle on the floor, or one is thrown over the other; and if she endeavors to walk, her progress is most uncertain; she halts and drags her leg rather than lifts it up, and advances in a jumping manner by fits and starts. In short, the voluntary muscles are moved in that capricious and fantastic way in which we might fancy they would be moved if some invisible mischievous being, some Puck or Robin Goodfellow, were behind the patient and prompted the discordant gestures. With all this the articulation is impeded: there is the same perverse interference with some of the muscles concerned in the utterance of the voice. By a strong figure of speech, the disorder has been called "insanity of the muscles."

These convulsive motions vary. The muscles of the extremities and of the face, those moving the lower jaw, the head and the trunk of the body, are at different times, and in different instances, affected by it. In this state the patient does not walk steadily; his gait resembles a jumping or starting; he sometimes cannot walk at all, and seems palsied; he cannot perform the common and necessary motions with the affected arms. The convulsive motion is more or less violent; and is constant except during sleep, when, in most instances, it ceases altogether. Although different muscles are sometimes successively convulsed, yet in general, the muscles

affected in the early part of the disease remain so during the course of it. Articulation is now impeded, and is frequently completely suspended. Deglutition is also occasionally performed with difficulty. The countenance is pale and expressive of vacancy and languor. These circumstances give the patient a fatuitous appearance. Indeed there is every reason to believe that when the complaint has subsisted for some time, fatuity to a certain extent interrupts the exercise of the mental faculties.

Thermaier gives a case in which it was connected with a deeply melancholy temperament, and the limbs were in a state of constant snatching and trepidation; but this is a rare concomitant; nor is fatuity a constant sequel of it even in its most obstinate and chronic form. Dr. Condie says he has met with various instances in which the disease has continued with considerable violence from an early period to an old age, without making any inroad whatever on the mind, or even spreading to any other joints, limbs or muscles, than those at first affected. He once knew a man under the habitual influence of this complaint who was a good orator, always reasoning with great clearness, and delivering himself with much animation. The movements of his arms were indeed, in ungraceful snatches, and the muscles of the neck frequently evinced a like convulsive start, yet not so as to intercept a flow of his periods, or to abridge his popularity. He knew another person for many years severely afflicted with the same complaint who was an excellent musician, public singer, and composer of music; and this, too, notwithstanding, that he was blind from birth. The person alluded to, is the late Mr. John Printer, of the Foundling Hospital. In walking he was always led on account of his blindness, and used a staff on account of the unsteadiness of his steps; but, notwithstanding every exertion, his gesticulation was extreme, and so nearly approaching the antics of a buffoon, that it was often difficult for a spectator to suppress laughter. Yet in singing and playing he had a perfect command over the muscles of the larnyx and of the fingers; his tones were exquisitely clear and finely modulated; but his neck and head curvetted a little occasionally. He died when about sixty years of age, without ever exhibiting any debility of intellect.

There is a singular form of this disease which has been called by some writers *Malleatio*, consisting in a convulsive action of one or both hands which strike the knee like a hammer. In this case the hands are usually open, but sometimes clenched. Morgagni relates a case in which it came on even in the sound hand,

if the finger of the affected one were extended. If the motion be forcibly stopped, the convulsion becomes afterward still more violent and general.

Where the system is disposed to hysteria, the paroxysm is sometimes extremely vehement, and partakes of the constitutional diathesis, making an approach to epilepsy, but distinguished from it by a continuance of consciousness and sensibility. Dr. White, of York, has given us a striking example of this mixed affection in a lady forty-two years of age, who had always a very weak system of nerves, and was rendered speechless for an hour or two upon any sudden surprise. In November, he tells us, she was affected with a fresh paroxysm, which, upon being sent for, he describes as follows: "She complains of a violent pain in the right side of her face, and of universal erratic aches and soreness. There is a scorching heat all over the skin, except from the feet up to the ancles, which are as cold as marble. Pulse not quickened, but full; mouth dry, but no great thirst; body costive, which is indeed her natural habit, so as to oblige her to the frequent use of magnesia. She is regular as to the menses, the return of which she expects in five or six days. Appetite good, rather voracious; but her spirits always low after a full meal, especially dinner. Has a violent pain in the loins, which often shift from hip to hip: the leg of the aching side being so much affected with stupor and numbness, that she drags it after her in walking. She falters in her speech at times, but this does not continue long. All the muscles of the body evince convulsive motions; not simultaneously, but successively; thus, her face is first violently affected, then her nose, eyelids and whole head, which is thrown forcibly backward, and often twitched from one side to the other with exquisite pain. From this quarter the convulsive action removes first into one arm, and then into the other; after which both legs immediately become convulsed with violent and incessant motions, and in this manner all the external parts of her body are affected by turns.—She is all the time perfectly sensible, and knows what limb is going to be attacked next, by a sensation of something running into it from the part already convulsed, which she cannot describe in words: but the foretoken has always been found to be true, though the transition is surprisingly quick. She is easiest in a prone posture.', "Such," continues Dr. White, "has been her situation upwards of forty-eight hours with scarce a moment's remission, by which she complains of great and universal soreness. No words can convey an adequate idea of her odd appearance; and I do not

in the least wonder that in the times of ignorance and superstition, such diseases were ascribed to supernatural causes and the agency of demons." Even Dr. White himself applies to it, perhaps in imitation to Savauges, the name of hieronosos.

Treatment.—The success of the Reform practice in this disease has been unbounded. Probably there never has been a case of chorea in the hands of a judicious practitioner—one upon which thorough treatment had been put in requision, without either experiencing great benefit, or a radical cure.

Every indication of treatment that is necessary to be fulfilled, is accomplished by the full courses of medicine, frequent steamings, and the aromatic tonic bitters.

If the bowels are torpid, an injection once a day will be indispensable. Nervines are useful in this complaint, and particularly the scullcap, the infusion of which may be taken freely as a drink. The lobelia Pills, or alterative mixture, may be advantageously employed as a part of the intermediate treatment. The patient should subsist upon a plain, simple diet, eating temperately, and avoiding the use of tea, coffee, butter, and all oily or greasy substances. The unbolted wheat bread will be found very wholesome.

If the bowels are obstinately costive, a decoction of boneset may be employed with advantage; or half a tea-spoonful of cayenne mixed with molasses may be taken three times a day.

We have found the following preparation to answer a very good purpose. Take equal parts of scullcap and composition, and steep a large table-spoonful of the powder in a pint of boiling water. Keep the tea warm by the fire, and take a tea-cupful at a dose, repeating it three or four times a day, and avoiding exposure to a damp or chilly atmosphere. The value of the remedy may be increased by adding ten, fifteen, or twenty drops of the tincture of lobelia to each tea-cupful of the tea. In addition to this treatment, the skin should be rubbed briskly every night and morning with a coarse towel or flesh-brush.

From the fact that tonics have always been found useful in this disease, it is very evident that it depends on a weakened and irritable state of the nervous system. The various preparations of iron have been found beneficial in this disease, and nothing is objectionable in their administration. They should be continued for some weeks, and even after the symptoms are relieved. The oil of turpentine has been used with success, and also electricity—the

cold and the vapor bath in alternation. Sea bathing has been found very efficacious in many cases.

Mild aperients should be used, and among the best we shall notice the Spice Bitters, or the Female Restorative Bitters, made laxative with the Leptan. Vir, (Black Root.)

The treatment of Chorea embraces two definite objects, one to give stability to the unduly moveable nervous centres, and the other to remove or avert whatever may be likely to produce unnatural excitement. Macroty's racemosa (black cohosh) has been found a valuable remedy, and is used even by Allopathic practitioners to some extent. It may be given in the dose of half a teaspoonful of the powdered root, three times a day.

It is scarcely necessary for us to say that due attention must be paid to the diet. This ought to be plain and simple, but at the same time nourishing, and even generous. Exercise, short of that which produces fatigue, in the open air, in fine and dry weather, will also conduce much to the patient's recovery. And all kinds of immoderate *emotion* should be guarded against; for the contest often seems to lie between the emotional and the voluntary impulses to action. The stillness of the muscles during sleep is in accordance with this belief.

Properly adapted gymnastic exercises are likewise valuable adjuvants; they engage the attention and strengthen the action of the nervous system, and are in every way advantageous.

Where Chorea is complicated, as it sometimes is, with disease of the heart, or of the spinal chord or its membranes, the treatment must be modified according to this complication; and attention directed to those organs, as mentioned in other parts of the work, where spinal and heart affections are treated.

Dr. Comfort makes the following remarks on the treatment of this disease:

"In the latter stages of the disease, or during any period when the tongue is thickly coated and manifests a tendency to clean, a strong decoction of bayberry or sumac, or of the two combined, must be given as often as once a day. In every case of St. Vitus' dance that I have attended, there has been a false membrane discharged from the bowels, and flakes of a similar substance have been thrown off by vomiting about the time the disease gives way. Indeed, I have sometimes been inclined to believe that a coating of thickened secretions over the mucous membrane of the stomach and bowels was a principal cause of the protraction of the disease. The fact that patients recover soon after such a substance is ob-

served to pass from the bowels, furnishes some proof in support of this opinion. May it not be the presence of a false membrane lining the stomach that renders this organ so extremely insensible to the impression of lobelia, observable in many instances in St. Vitus' dance?

"The No. 3 pills will answer in the place of the astringent teas, and are much more readily taken. From three to six of these pills may be taken three or four times a day on an empty stomach.

"*The Diet* must be nourishing, and easy of digestion, such as boiled milk and toast, stale bread, crackers, fresh beef and mutton, poultry, eggs, custard, boiled rice, and all wholesome vegetables. All kinds of confectionery, cakes, hot bread, and pastry, must be avoided. The supper should always be light.

"When St. Vitus' dance is dependent upon, or associated with, obstructed menstruation, the method of treatment already laid down will be appropriate to the case. Particular attention, however, will be necessary to keep the feet dry and warm, and to use frequently warm foot baths. When the period arrives at which the patient should be *unwell*, stimulating enemas should be administered to the bowels, composed of pennyroyal tea, adding a teaspoonful of lobelia powder to each; or of bayberry tea, with the addition of a tea-spoonful of the third preparation of lobelia; the foot-bath should be used daily, and the patient drink freely of composition or pennyroyal tea; and if the general health be much deranged, an emetic should be given. If there be much pain in the back or loins at this period, the patient should be kept warm in bed, and bottles of hot water or hot bricks wrapped in damp cloths be applied to the back and feet."

After having cleared the stomach and bowels, and created in them a more healthy action, give the *restorative wine bitters*, to which add half an ounce of the *red oxide of iron*. *Anti-dyspeptic pills* to be taken at night, and in sufficient number to regulate the bowels; two or three every day or two are usually sufficient. They impart tone and energy to the system, while they carry off all feculent matter from the intestines. The feet should be occasionally bathed, as also the surface of the body, if the skin is usually dry. The following infusion, used with the other means recommended, (and probably used alone,) is almost a specific in this disease: Take scullcap, (*scutellaria lateriflora*,) one ounce; boiling water, one quart; strain, and sweeten with loaf sugar. Let the patient drink of this freely through the day, and constantly to be drank alternately with the tea of *valerian* before mentioned.

PARALYSIS AGITANS—SHAKING PALSY.

Description and Causes.—This form of disease bears quite a resemblance to Chorea, which we last described. It consists in slight involuntary contractions of the voluntary muscles, or a part of them; these convulsive movements deranging or embarrassing volition. The upper parts of the body are more frequently affected than the lower.

The precise nature of the disease of the nervous system is unknown; but it would appear to be dependent upon a badly regulated or intermittent supply of the nervous agency, to which the term "locomotive influx" has been given by some physiologists.

Any violent mental agitation, as excessive anger or fear, induces a general tremor or trembling, which is more marked, perhaps, in the lower than in the upper limbs, but the tremor passes away with the cause that induced it. All profuse evacuations, and every debilitating agency, must be equally regarded amongst the causes, as well as the excitement induced by excess in the venereal act, and by the alternate stimulation and depression occasioned by too liberal indulgence in alcoholic potations. It is also observed in the course of long protracted febrile diseases, especially in those of the typhoid and typhus kinds, and in fact towards the termination of all acute and chronic diseases, in which the powers of the nervous system yield. In some cases, the convulsions are marked, giving rise to convulsive twitchings, termed *Subsultus tendinum*, or to irregular motion, as if the individual were picking the bedclothes, a state which has been termed *Carphologia*. Tremors take place, likewise, in the progress of age, hence termed *senile;* and they are observable in muscles, whose nervous energy has been worn out or impaired by continued exertion.

One form of the disease is induced by mercurial vapors, and is, hence, met with in gilders of metals, looking-glass manufacturers, makers of barometers and thermometers, etc.; and it is mentioned as remarkable, that when mercury is received into the system in this form, it does not occasion salivation; whilst if it be conveyed by friction, or through the stomach, salivation is induced but no tremors; at least, such, Andral observes, is a general rule; but farther observation appears to be needed before we can consider it established. At times, too, the preparations of lead have appeared to induce it.

Excessive use of opium and tobacco produces the same effect

as the alcoholic liquors. The nervous vascillation is perceptible under an over-dose of either, as in cases of inebriation; but in such case it is transient. Under habitual use, however, it becomes permanent. Some of the worst cases of nervous trembling, which we have seen, were caused by the immoderate use of tobacco; but, in all cases, the nervous system recovered its power under the gradual diminution and entire discontinuance of the cause.

A sense of weakness, and a disposition to trembling, fastens on some particular part; sometimes it is the head, but more commonly it is one of the hands or arms. These symptoms gradually become more decided, and at length the morbid influence is felt in some other part. At a still more advanced period the patient is found to be less strict than usual in preserving an upright posture, even when standing or sitting, but especially when walking. By degrees he finds a difficulty in making the hand obey the dictates of the will when he is engaged in any delicate manipulation —in writing, for example; and he is obliged to walk with circumspection and care; his legs are not raised to that height, nor with that promptitude which the will directs; so that much attention is necessary to prevent frequent falls. Then, as the malady proceeds, the propensity to lean forwards becomes more strong—the patient is forced to step on the toes and fore-part of the feet, while the upper part of the body is thrown so far forward as to render it difficult to avoid falling on the face; in some cases he is irresistibly impelled to take much quicker and shorter steps than common, and thereby to adopt unwillingly a running pace.

Mr. Parkinson conjectures that this complaint results from some chronic change of the upper part of the spinal cord, or of the medulla oblongata; but dissections are wanting to support or to refute that conjecture. Some of the patients, whose cases he has given, had been intemperate livers; hard drinkers; others had not been guilty of any such excesses; several had suffered a good deal from rheumatism, which he thought might have laid the foundation of their lamentable disease. But a more exact pathology of the shaking palsy is still needed. Dr. M. Hall observes that the symptoms have, in several particulars, a marked resemblance to the effects observed by M. Serres (and related in his *Anatomie du Cerveau*) of disease of the tuber annulare, or of the tubercula quadrigemina.

Tetanus affects the voluntary muscles; but palsy does not affect them, like tetanus, with spasms, but with minute convulsions called "tremors," alternating perhaps with relaxation, and quite

involuntary. Not only are the motions involuntary, but the patient has not the same power in producing voluntary motion, that he has in tetanus. It is not the tremor which a person who has been intoxicated the night before, or has taken a cup of strong coffee or tea, shows when going to put the glass to his head—shaking it till he spills the contents; but there is a tremor when the parts are still, and even supported. Of course, when we run, we make a much greater voluntary effort, than when we walk.—The faster we run, the greater is the effort we make, and the more powerful and steady is the motion. We can therefore conceive, that, by a strong effort, the patient is more likely to overcome involuntary motion, than if he be only exerting half the volition; so that persons in this disease are not to be interrupted, and are constantly on the trot, as it were.

Progress of the Disease.—The muscular weakness and tremors begin, generally, in some one part of the body only; for instance, in the head; but most frequently they begin in the hand or in the arm; and perhaps it is not till after some months, or even some years, that another part is affected. But the disease frequently increases both in degree and extent; more parts become affected; and parts affected before become more affected; till, at last, the whole body shakes. Like St. Vitus' dance, it may be checked for a moment, or a few minutes, or even to the extent of a minute, by a violently strong voluntary effort; but it soon returns.

Diagnosis.—We have to make a diagnosis between this disease, and the tremor induced by drunkenness, or violent passion, or that which occurs in delirium tremens. The tremor, in these cases, occurs particularly when an effort is made, and is not lessened by an effort. It is not lessened by support; and generally the cause is obvious. Many old writers have made this distinction;—Galen, Sauvages, and others; yet we believe paralysis agitans was not well characterized, until Mr. Parkinson wrote his pamphlet on it, in 1817.

The symptoms require no description. It has been already remarked, that the tremors may be general or partial. In the aged they are commonly confined to the head; but the muscles of the upper extremities especially may participate. At times, the tremors are suspended during sleep.

In mercurial tremors, the affection is most commonly limited to the limbs; so that uncertainty in the gait, embarrassed movements, and impaired powers of prehension, are the main symptoms; and these are, occasionally, accompanied by sudden involuntary jerkings or twitchings of the muscles, and cramps.

The duration of the disease must vary. Often, it passes away with the removal of the cause; but the tremors of old age, depending as they do on the impairment of innervation connected with the period of life, and hence being a form of *Shaking palsy*, *Paralysis agitans*, may be deemed incurable.

The most common symptoms of this disease when caused by the inhalation of the fumes of mercury, are the following:

The malady comes on sometimes suddenly, more often by degrees. The patient is less sure of his arms than usual; they become tremulous, and at last shake, and, if he continues to pursue his employment, the force of the trembling goes on increasing, till at length it is so general and violent that he can persist no longer. His power of locomotion is impaired; his mastication, his speech, all his mannal operations, are interferred with; he becomes unable to convey food to his month, and is obliged to be attended to and fed, like an infant; and by and by, if he does not quit the poisonous atmosphere, graver symptoms supervene—wakefulness delirium and loss of consciousness follow.

As the tremor increases, the digestive organs become disordered; the appetite falls off; nausea is felt, the tongue becomes furred, and gas collects in the intestines. The patients acquire a remarkable brown hue; and their teeth turn black. The pulse is generally full and slow.

The time required for the production of these effects varies much in different cases; from two years to five and twenty. Something depends no doubt upon the quantity and intensity of the fumes. Chattin told us that the workmen became ill whenever they had *a large job* on hand. In both his severe attacks (and very often besides, both in him and his companions) the mercury produced salivation. This was unfrequent in the patients observed by Merat. The duration of the complaint is considerable; it may last two or three months, or longer; and sometimes it is not completely recovered from at all. Yet it is not a fatal disorder.

Although the visible affection is of the *muscles*, the mischievous operation of the poison is really upon the *nerves*, weakening their natural influence. When the will is directed upon the muscles, they contract unsteadily, and with frequent remissions; their action is not sustained; and it is a general observation by all who have written upon the disease, that it is aggravated by all kinds of mental emotion, by alarm, anger, surprise.

A very particular form of convulsive disease has recently been described. It is characterized by repeated bobbings of the head

forward, at first slight and occasional, but becoming in process of time, so frequent and powerful, as to cause a heaving of the head forwards, towards the kness, succeeded by an immediate return to the upright position, somewhat similar to the attacks of emprosthotonos. In one case, related by J. W. West, these bobbings were repeated at intervals of a few seconds, ten, twenty, or more times, in each attack, which continued from two to three minutes, and recurred twice, thrice or oftener in the day; the attack occurring whether the patient was sitting or lying. During the attack, the child retained his consciousness. The other cases that have been since recorded by Drs. Barton and Bennett, in their general symptoms, differ in no degree from that of Mr. West, with the exception of that of Dr. Bennett, in which the disease was of a more aggravated character. Sir Charles Clarke has seen four cases of the disease, and from the peculiar bobbing of the head, has named it the *Salaam Convulsion;* Dr. Locock has seen two cases. One of Sir Charles Clarke's patients recovered perfectly, the other became paralytic and idiotic, and died at the age of seventeen. Mr. West has heard of other two cases—one of the patients lived to the age of seventeen; the other to nineteen—both became idiotic.—The sex and ages of the patients whose cases are on record, are one female of seven years, and two boys of one and six years—death did not occur in either; in the female and one of the boys the disease appears to have ceased.

Treatment.—We have but little to say in regard to the treatment of this disease, since in most cases it is incurable, especially in the aged, where we most frequently see it. In the young we may sometimes radically cure, by constitutional treatment, such as good alteratives, cold and warm bathing, and a strict hygeanic course in diet and exercise.

The cause must be removed if possible, Dr. Elliotson mentions a case cured by the use of the sesquioxide of iron, after the depletive practice had failed, but he says other cases did not yield at all to this remedy.

Vapor baths and an occasional course of medicine, together with the use of stimulants and tonics and exercise in the open air, may succeed in effecting a cure, or at least prevent the disease from getting worse.

Where this trembling of the nerves is produced by the use of tobacco, snuff, or other narcotics, the only indication is to stop the cause, total abstinence from the use of the poisons, for, while the cause remain, no remedy can prove efficacious.

HYSTERIA—HYSTERIC FITS.

Description and Causes.—This disease is called Hysteria from its supposed origin in, or its connection with, the uterus, but yet it *may* arise from other causes, when the womb is in a healthy state, and there are a few well marked cases in the male sex.

It has been before remarked, that an unusual impression of the nervous system constitutes a predisposition to hysteria. This may be either natural or acquired. Any morbid or physiological cause, consequently, that develops this impressibility, may be reckoned amongst the exciting causes of hysteria. At the periods of menstruation, and of the commencement and cessation of the catamenial secretion, the system of the female is observed to be unusually impressible; at such times, a slighter exciting cause will develope the disease than at others, and when once induced, like the other neuroses, it more readily recurs.

Amongst the exciting causes, sudden and powerful mental emotions are the most common; but any source of irritation, especially when conjoined with debility, may occasion it.

It may be produced, likewise, by disordered states of important organs; by irritations in the digestive tube; and, debility, may occasion it.

It may be produced, likewise, by disordered states of important organs; by irritations in the digestive tube; and, doubtless, in the uterus as in other organs, whence irradiations proceed to the great nervous centres, from which they are reflected over the whole organism.

But few persons die in a paroxysm of hysteria, and, when they do, the appearances are those of concomitant or consequent lesions, rather than such as throw any light on the nature of the disease.

It has been already remarked, that hysteria is properly a disease of the nervous system. At the present day, indeed, it is scarcely necessary to say, that it cannot be an affection wholly of the uterus;—the whole train of symptoms implicating the functions of sensation, volition, and the mental and moral manifestations sufficiently show, that the seat of hysteria may be in the nervous system, and that there is no necessary connection between hysteria and the uterus. The organization and habits of the female render her, by her greater impressibility, more liable to attacks of hysteria, and the condition of the uterus in health and disease, may, doubtless, be concerned in the causation,

but in this way only. Hysteric symptoms occur both before the development of the uterus at puberty, and after the cessation of the catamenia; and, as was before observed, well marked hysteria is met with in men.

Any woman may have hysteria, if she can but have emotion of mind strong enough. Epilepsy is a disease which only occurs in certain individuals, as it would appear, from a certain degree of predisposition; but mental emotion will cause more or less hysteria in almost any woman. Anger or grief, especially grief from ungratified desire, or (to use a more elegant expression) "disappointed love," is the most common cause, and it is quite as frequent from disappointed *lust*—in which desire is the only ingredient—as from pure, simple, unrequited *love*.

There can be no doubt, that regular hysteria is situated in the head. The cause may be any where; but the disease must be in the head. If a patient is partially convulsed, it may arise from an affection of the spinal marrow; but, in hysteria, muscles that arise *above* the spinal marrow are affected; in addition to which there is insensibility; which, shows that the seat is in the head. We see patients laughing, sobbing, and crying; and then they are suddenly in high spirits again;—so that it certainly must be an affection of the head; only that it arises from a variety of causes, situated in a variety of parts. It very rarely arises from an organic affection in the head, as epilepsy does. As to the other affections—the palpitation, the faintness, and similar phenomena—they only show the extent of the affection.

In some cases the patient is attacked with violent pains in the back, which extend from the spine to the sternum, and at length become fixed upon the region of the stomach, being evidently of a spasmodic nature, and often prevailing in so high a degree as to cause clammy sweats, a pale cadaverous look, coldness of the extremities, and a pulse hardly perceptible.

Hysteric affections occur more frequently in the single state of life than in the married, and most usually between the age of puberty and that of thirty-five years; and they make their attack oftener about the period of menstruation than at any other.

They are readily excited in those who are subject to them by every considerable emotion, especially when brought on by surprise: hence sudden joy, grief, fear, etc., are apt to occasion them. They have also been known to arise from imitation and sympathy.

Women of a delicate habit, and whose nervous system is extremely sensible, are those who are most subject to hysteric affections; and the habit which predisposes to their attacks is acquired by inactivity and a sedentary life, grief, anxiety of mind, late hours, dissipation, a suppression or obstruction of the menstrual flux, excessive evacuations, and the constant use of a low diet, or of crude unwholesome food. The disease is sometimes met with in the more delicate of the male sex.

Diagnosis.—It occurs under a great variety of forms, but they may all be reduced, for convenience of description, to two. The first of these has a general resemblance to an epileptic fit. The trunk and limbs of the patient are agitated with strong convulsive movements; she struggles violently, like a person contending; rises into a sitting posture, and then throws herself back again; forcibly retracts and extends her legs, while her body is twisted from side to side; and so powerful are these muscular contortions that it often is all that three or four strong persons can do to restrain a slight girl, and prevent her from injuring herself or others. The head is generally thrown backwards, and the throat projects; the face is flushed; the eyelids are closed and tremulous; the nostrils distended; the jaws often firmly shut; but there is no *distortion* of the countenance: the cheeks are at rest, unless when, as often happens, the patient is uttering screams, or exclamations. If the hands are left at liberty, she will often strike her breast repeatedly and quickly, or carry her fingers to her throat, as if to remove some oppression there; or she will sometimes tear her hair, or rend her clothes or attempt to bite those about her. With all this her breathing is deep, laboring, irregular; and the heart palpitates. After a short time this violent agitation is calmed: but the patient lies panting and trembling, and starting at the slightest noise or the gentlest touch; or sometimes she remains motionless during the remissions, with a fixed eye; till all at once the convulsive movements are renewed: and this alternation of spasm and quiet will go on for a space of time that varies considerably in different cases: and the whole attack frequently terminates in an explosion of tears and sobs, and convulsive laughter.

There is a *variety* of this form of hysterical paroxysm, in which the patient suddenly sinks down insensible, and without convulsions; with slow and interrupted breathing, a turgid neck and flushed cheeks; and she recovers from that condition, depressed in spirits, fatigued and crying.

You will observe that the symptoms we have been enumerat-

ing belong to the nervous system; and indicate great derangement in the functions of animal life. In the other of the two forms to which all the various modifications of the attack may be reduced, the principal marks of disturbance are referable to some of the viscera. The patient experiences a sense of uneasiness in some part of the abdomen, frequently towards the left flank; a ball appears to roll about, and to rise first to the situation of the stomach, and then to the throat, where the patient feels a choking sensation; the action of swallowing is freely repeated; the abdomen becomes distended with wind, loud rumblings and sudden eructations take place; there is much palpitation of the heart, the patient is sad and sorrowful, and prone to shed tears.

After the paroxysms, these patients commonly void a large quantity of limpid, pale urine, looking almost like water; and this is sometimes expelled during the fit.

It is of great importance to be able to render the diagnosis certain and accurate. It is a dreadful announcement to have to make to a father or a mother that their child is epileptic; whereas hysteria, though it is sufficiently distressing, is attended, in nine hundred and ninety-nine cases out of a thousand, with no ultimate peril either to mind or body. In some instances the diagnosis is perfectly easy; in others it is dubious and full of anxiety. Whenever you fail to satisfy yourselves completely as to the nature of a given case, you will do well, in legal phrase, to give your patient the benefit of your doubts, and acquit her of epilepsy; or pronounce her guilty of the minor offence of hysteria.

The points of resemblance, and the points of distinction, belonging to the hysterical and epileptic paroxysm respectively, have been very clearly summed up by Foville.

There are two principal forms of each disorder. In each, one of these forms is convulsive and the other is not. The non-convulsive form of epilepsy relates exclusively to the sensorium: it is characterized by vertigo, and by a suspension (however brief and transitory) of the mental powers. The non-convulsive form of hysteria has little apparent connection with the animal functions: its palpable phenomena consist in the derangement of the organic functions of the thorax and abdomen. It is the ganglionic portion of the nervous system that seems chiefly disturbed.

In the epileptic *fit* there is an entire loss of consciousness. The patient, on emerging from the paroxysm, recollects nothing of what has been going on during its continuence. It is not so in the hysterical fit. The loss of consciousness is very seldom complete;

and it never occurs at the outset of the attack. The patient is often able to repeat (though she may not always choose to confess it) what has been said by the bystanders during the period when she seemed insensible. This is a point of distinction well worth remembering, for more reasons than one. It only helps the diagnosis when the fact comes out; but it suggests certain cautions to ourselves. We must take care not to say anything by the bed-side of an hysterical patient which we do not wish her to hear; and we may take advantage of her apparent unconsciousness, and pretend to believe in it, and speak of certain modes of treatment which she will not much approve of, but the very mention of which may serve to bring her out of the fit.

In the epileptic paroxysm the face is usually livid; and foam, which is frothy with air, or red with blood, escapes from the patient's mouth. These are symptoms which we do not see in the fits of hysteria. The convulsive movements even, offer some characteristic shades of distinction. In epilepsy they are often more marked on one side of the body than on the other, and less irregular: the same movements are rapidly repeated; there is a strange rattle in the breathing; while in hysteria the forcible flexion and extension of the limbs, and the contortions of the trunk, are more sudden, and, as it were, capricious; the respiration is deep, sighing, mixed with cries, and sobs, and often with laughter. But perhaps, the convulsive motions differ most in the face. The epileptic expression is usally frightful; the eyelids half open, the eyeballs rolling, the mouth drawn to one side, the teeth grinding, the gums exposed by the reaction of the lips, the tongue protruded and bleeding, the complexion leaden; while in hysteria the cheeks are red, but at rest; the eyelids are closed and trembling; if you raise the upper one, you will see the eye fixed, perhaps, but it is bright, and very different from that of the epileptic, which if it be not rolling, is dull, projecting, and the pupil usually dilated.

Foville states that when, besides a sudden loss of consciousness with convulsive movements, there are also lividity of the face, and an escape of frothy saliva from between the lips, and the convulsions are more pronounced on the one side of the body than on the other, the disease is epilepsy, and not hysteria: and he is right.

By Dr. Marshall Hall the grand distinction between the two diseases is affirmed to be this:—that in hysteria, much as the *larynx* may be affected, it is never closed; in epilepsy, it *is* closed. Accordingly, in the former we have heaving, sighing, inspiration; in the latter, violent ineffectual efforts at expiration. In the very

outset of the epileptic paroxysm the respiration is thus suspended.

The hysterical seizure may be over in a quarter of an hour, or in less time than that; or it may last many hours, or even several days.

The hysterical seizure is almost peculiar to women: and it seldom occurs in them except during that period of their lives in which the menstrual function of the uterus is or ought to be in activity. In the country it is most apt to occur between the ages of fifteen and forty; and in the vast majority of patients who do suffer it, you will find some marked derangement of that particular function. These facts alone afford a strong corroboration of the ancient theory, which ascribed the whole of the phenomena to uterine disorder; and *named* the disease accordingly. You will hear or read of disputes as to whether the womb, with its appendages, or the nervous system, is the seat of hysteria. But such disputes are merely verbal No doubt the convulsive movements, and the mental affection, and the unnatural sensations, depend upon some altered condition of the brain and nerves; but it does not follow that the disease originates in that altered condition. We know that the uterus or the ovaries cannot of themselves determine the muscles to contract; but if they be in an unhealthy state they may act upon the muscles through the *medium* of the nervous system: and such is the fact. *How* they do so we no more know than we know how the little finger is bent when we resolve to bend it.

But, say some, we every day meet with diseased conditions of the uterus and ovaries—amenorrhœa, dysmenorrhœa, menorrhagia, even disorganization—without any of these nervous symptoms.—True; and we cannot always fathom the mystery of this. But one thing is certain, that there exists in some persons a much greater readiness to take on the disease, upon the application of the exciting cause, than in others.

The persons who suffer hysteria are of this class. They are commonly young women, in whom the process of menstruation is in some way or other disordered; and who either are naturally of a feeble constitution, or have been debilitated by disease, or by their habits of life. They often are pale; have cold hands and feet; are subject to chilblains; eat but little, and do not fancy meat, which they sometimes absolutely dislike and refuse; or their taste is depraved or capricious—they will devour wax candles, wafers, chalk, sealing wax, slate pencils and such trash. And what is very

curious and characteristic, although they often abstain almost entirely from animal food for weeks or months together, and take very little nourishment of any kind, they do not in general emaciate. You might expect that under such a mode of life, they would waste away; but they continue round and plump, and smooth.—Some of them are even ruddy.

Almost every kind of serious disease may be nicknamed by what we must call hysteria. And your skill will sometimes be severely tasked to determine the true import of the symptoms, and the real nature of the case.

One of the diseases which is most often copied by hysteria, is *inflammation of the peritoneum.* You will find a patient complaining of acute pain of the abdomen, aggravated with the slightest pressure; and she shall have, perhaps, a hot skin, a quick pulse, and a furred tongue. When you meet with such symptoms in a young female, in whom there is any derangement or irregularity of the uterine functions, search into her previous history as narrowly as you can; if you find that she has had similar attacks before; if she has been known to suffer hysterical fits; and if the tenderness is excessive, and, as it were, superficial, felt upon the slightest touch as much as when firmer pressure is made, you may generally purge the patient well, and cause an asafœtida enema with lobelia, to be thrown into the rectum; and in a few hours you will find that the peritonitis has vanished.

Among the pains which infest females of the hysteric constitution, and which are apt to be erroneously ascribed to inflammation, *stitches and pains in the hypochondria* are probably the most common. They are oftener complained of in the left hypochondrium than in the right. These things are much more general now than they used to be even a few years ago.

You would scarcely suppose that *palsy*—perfect hemiplegia or paraplegia—could be simulated by hysteria; yet this certainly is the case; and we have seen instances of it even among hospital patients. They are difficult and perplexing cases. The sudden occurrence of the paralysis, without any of the other symptoms which commonly mark the real disease, its sudden disappearance, and, above all, the supervention of an hysterical paroxysm, will often disclose the true nature of the affection. Hysterical affections referred to the throat are very common. *Aphonia*, for example: the voice being lost on a sudden, and returning as suddenly. Mock *laryngitis.*

Surgeons are familiar with the "hysterical breast." The mamma becomes painful, tender, enlarges somewhat, perhaps.—The girl fears that a cancer is breeding. She communicates her alarm to her friends, and a medical man is consulted. If he happens to be timid and inexperienced, he makes matters infinitely worse by applying fomentations; by examining the breast at every visit; and by keeping the patient's attention anxiously fixed upon it. Whereas the treatment ought to be directed to the state of the general system; and the local uneasiness spoken lightly of or disregarded.

Among the hysteric affections of the air passages, there is a peculiar kind of cough which you ought to be acquainted with.—It is loud, harsh, dry, more like a bark than a cough. Sometimes it is incessant, sometimes it occurs in paroxysms which we verily believe, are more annoying to hear than to suffer. Hysterical affections of the diaphragm again are by no means rare.

The patient complains of pain and tenderness in her back, and of weakness probably in her lower extremities; and it is now become notorious that scores of young women have been unnecessarily confined for months or years to a horizontal position, and have had their backs seamed with issues, for supposed disease of the bodies of the vertebræ, who had really nothing the matter with them but hysteria, and who would probably have soon ceased to complain if, instead of being restricted to that unnatural imprisonment and posture, they had taken a daily gallop on horseback.

It is curious enough to notice how the mind is apt to become affected in some of these cases. After the patient has been lying supine for some weeks, she *is* unable to stand or walk, or simply because she *thinks* she is unable. The instant she makes a fair effort to use her limbs again, she can and does use them. Her condition is at once reversed. *Potest quia posse videtur.*

For the most part, the convulsions are renewed in the midst of the insensibility. There are also, sobbing, crying, laughing, and shrieking in the fit; but particularly before and after it. Sometimes, though not always, there is a mixture of sobbing, crying, laughing, and shrieking, in the midst of the convulsions. The insensibility is, generally, incomplete; the patient having some knowledge of what is going on around, if not all the time, yet during more or less of it. There is also experienced a sense of choking—as if there were a ball in the throat, which could neither be got down nor brought up—together with irregular breathing; so that there is panting, and the chest heaves up and down. Fre-

quently there is hiccup. Sometimes there is a rumbling noise in the abdomen; and a sensation is experienced as if a ball were rolling to and fro, till at last it comes to the epigastrium, and thence rises to the throat, where it sticks; and then the convulsions begin, and the patient falls down. The abdomen seems to swell, and no doubt it does so. In a few minutes, sometimes, the abdomen will be distended with flatus. There is also violent palpitation, just as in epilepsy.

Hysteria differs from hypochrondriasis in the following particulars, and by paying attention to them we may always readily distinguish between them. Hysteria attacks the sanguine and plethoric; comes on soon after the age of puberty; makes its onset suddenly and violently, so as to deprive the patient of all sense and voluntary motion; is accompanied with the sensation of a ball rising upwards in the throat, so as to threaten suffocation; is attended usually with much spasmodic affection; is more apt to terminate in epilepsy than in any other disease; and on dissection its morbid appearances are confined principally to the uterus and ovaria.

The reverse happens in hypochondriasis. It attacks the melancholic; seldom occurs till after the age of thirty-five; comes on gradually; is a tedious disease, and difficult to cure; exerts its pernicious effects on the membranous canal of the intestines, as well by spasms as wind; is more apt to terminate in melancholy or a low fever than in any other disease; and on dissection exhibits its morbid effects principally on the liver, spleen, and pancreas, which are often found in a hard, schirrous, or other diseased state.

Another very material difference might be pointed out between these two diseases, which is, that hysteria is much relieved by advancing in age, whereas hypochondriasis usually becomes aggravated.

The two diseases have often been confounded together; but, from duly considering the foregoing circumstances, it appears that a proper line of distinction should be drawn between them.

The hysteric passion likewise differs from syncope, as in this there is an entire cessation of the pulse, a contracted face, and a ghastly countenance; whereas in the uterine disorder there is often something of a color, and the face is more expanded; there is likewise a pulse, though languid; and this state may continue two or three days, which never happens in syncope.

It also differs from apoplexy, in which the abolition of sense and voluntary motion is attended with a sort of snoring, great diffi-

culty of breathing, and a quick pulse; which do not take place in hysteric cases.

Treatment.—The Reform Medical treatment for this disease is for the most part successful. The general course should be the same as for epilepsy, in the beginning and during the fit. We must set the patient up, loosen every thing tight about her person and neck—bathe the face and neck in cold water. Find out the exciting cause and remove that.

In the cure of hysteria two indications are to be attended to.

The first is to allay the spasmodic symptoms which constitute the fit; and

The second, to lessen the excitability of the nervous system, and strengthen the whole frame during the intermissions of the paroxysms.

The first of these indications is to be answered by an immediate lobelia emetic. The patient should be put in bed, warm bricks applied to the feet, composition freely given, followed by lobelia as soon as possible, and large doses should be repeated every ten or fifteen minutes until relief is obtained. Clysters composed of composition and No. 6, should be repeated also, where there exists torpidity of the bowels. This course will but seldom fail to arouse the patient from a paroxysm.

The second indication is to be attained during the intermissions of the exascerbations of excitement, by frequent light courses of medicine, which will lessen the irritability and excitability of the system by removing obstructions, and equalizing circulation, and they should invariably be followed by the bitter tonics. The female bitters would secure the greatest amount of good. The vapor bath at night, and friction with a piece of flannel, or rough towel, will have a tendency to promote quietude during the night and keep up an action upon the surface so manifestly essential. During the operation of the bath the feet should be immersed in warm water.

It is necessary in this disease to enquire into the state of the womb and strengthen this organ. We have found our anti-spasmodic to be far superior to the camphor, opium, and musk of the old school. It is an infallible remedy for that extreme languor and sinking, which the patient feels at the epigastrium, on the coming on of the spasm. The carbonate of iron, combined with the restorative bitters, will be found one of the best tonics after the spasms are stopped.

Remove all exciting causes—get the womb into good order—let the patient be in the open air as much as possible—the mind occupied—the exercise and diet regular, and the bath, cold and warm, often used.

If the patient cannot be made to swallow the medicine during or between the paroxysms, let enemas be administered, composed in part of third preparation of lobelia, and a tea-spoonful of spirits of turpentine. The bowels must be attended to, and if costiveness has existed, some mild aperient like the leptandrine must be given, and a small portion of aloes may be added to the purge, as this article acts upon the rectum, and may serve to excite the uterine organs to a healthy action. Marriage has sometimes effected a radical cure.

We cannot close this subject, better than by quoting Sir Benjamin Brodie's remarks on the same point, as we find them in a little work published by him, and containing many highly valuable observations and instructions in respect to *local hysterical affections:*

"You can render (he says) no more essential service to the more affluent classes of society, than by availing yourselves of every opportunity of explaining to those among them who are parents, how much the ordinary system of education tends to engender the disposition to these diseases among their female children. If you would go further, so as to make them understand in what their error consists, what they ought to do, and what they ought to leave undone, you need only point out the difference between the plans usually pursued in the bringing up of the two sexes.—The boys are sent at an early age to school, where a large portion of their time is passed in taking exercise in the open air; while their sisters are confined to heated rooms, taking little exercise out of doors, and often none at all, except in a carriage. Then, for the most part, the latter spend much more of their time in actual study than the former. The mind is over educated at the expense of the physical structure; and after all with little advantage to the mind itself: for who can doubt that the principal object of this part of education ought to be, not so much to fill the mind with knowledge, as to train it to a right exercise of its intellectual and moral faculties; or that, other things being the same, this is more easily accomplished in those whose animal functions are preserved in a healthy state, than it is in others."

CATALEPSY—ECSTASY AND LETHARGY.

General Observations.—We propose to treat these three forms of disease under one head, not so much because they have symptoms in common, but simply because we shall prescribe much the same treatment, and from the fact that they are very rare as well as very mysterious.

So wonderful and rare are these affections, that weak and superstitious persons have referred them to the interposition of supernatural agents in human affairs; and stronger minded persons, who happen never to have witnessed such diseases, deny their occurrence as fabulous, or laugh at them as the tricks and cheatings of imposture. They certainly do happen, however; and they happen mostly in the same class of persons in whom hysterical and nervous complaints of all kinds are most common. They often appear to be produced by similar causes with these; they resemble hysteria in being seldom attended with any danger to life; their pathology is, if possible, still more obscure than that of hysteria; and the treatment which would seem to be most suitable for their cure or prevention is the same.

CATALEPSY.

Description and Causes.—This affection of the nervous centres consists in a tonic contraction of some of the muscles, so that the limbs retain the position they had prior to the attack, or in which they may have been placed during it. Along with this, the intellectual faculties, and all the functions of sensibility, are more or less completely suspended.

The predisposing cause is, doubtless, great impressibility of the nervous system; and hence the affection is observed in females who are subject to hysteria, of which, indeed, catalepsy can only be regarded as a variety.

Diagnosis.—A fit of catalepsy implies a sudden suspension of thought, of sensibility, and of voluntary motion; the patient remaining, during the paroxysm, in the position in which she (for it is almost always a female) happened to be at the instant of the attack, or in the position in which she may be placed during its continuance; and all this without any notable affection of the functions of organic life.

This is certainly a very curious state, and one different from any that we have yet contemplated. We have had the muscles rigidly contracted with tonic spasm, while the powers of the mind, and the sensibility of the body, were unimpaired. We have had the same muscles shaken with clonic convulsions; both with and without coexistent disorder of the intellectual functions. But here we have a new phenomenon; the mental faculties are in abeyance, and the sensibility is abolished, and so also is the function of voluntary motion; but the limbs are not tied down by spasm; nor agitated by successive contraction and relaxation of their muscles; not yet left, like portions of dead matter, passively obedient to the laws of gravity; they assume any posture, however absurd, however (to all appearance) inconvenient and fatiguing, and that posture they retain, until some new force from without is applied to them, or until the paroxysm is at an end. The patient so affected, with open staring eyes often, and outstretched limbs, looks like a waxen figure; or an inanimate statue; or a frozen corpse. Indeed, Hoffman seems to have formed the strange conclusion that, as catalepsy, so far as he knew, occurred most frequently in winter, it must depend on congelation of the nervous fluid.

These singular attacks occur in paroxysms; and they have been known to alternate with well-marked hysteria; and to take place in connection with insanity.

The symptoms of catalepsy are very complicated. As in the neuroses already described, there may be prodromic or premonitory signs, such as palpitation, yawning and stretching, cramps, and cephalagia; but at other times, the patient is suddenly attacked with a general or partial rigidity of the muscles, and a total, or almost total, loss of consciousness—the limbs retaining the position they were in prior to the paroxym; the eyes are fixed, and generally directed upwards and forwards; the respiration may remain free, unless the disease attacks the respiratory muscles, when it becomes difficult, and almost imperceptible. The same may be said of the circulation; the pulse may continue full and free; but, at times, it, also, can scarcely be perceived. Generally, the limbs continue flexible, but stiff when we attempt to move them; at other times, they are entirely rigid; commonly, no matter what may be the position in which we place them, they retain it.

With these symptoms there are, occasionally, clonic convulsions.

The face is commonly flushed, and the surface warm. In rare cases, the intelligence is not disturbed; but, in the majority of

instances, no recollection exists of what took place during the paroxysm. The general sensibility is lost, so that the surface may be pinched or pricked without pain being experienced; the eye is not found to contract on the approach of light; and the hearing is totally suspended.

The duration of the attack is not always the same. At times, it is transient; at others, it continues for hours and even days, and is, doubtless, one of the forms of *trance* of which we read in authors. Cases, indeed, are on record, in which cataleptics have been considered dead, and interred alive.

It is necessary, in this disease, just as in hysteria and epilepsy, to ascertain whether the case is real. We are told that John Hunter discovered that a case of this disease was feigned, by putting a string round the wrist of a patient, after the arm was extended, and appending a weight to it. The string was suddenly cut, and as the man had then no weight to support, the arm was immediately raised. It appeared to John Hunter, that the man had sustained the weight by the exertion of his muscles; and the throwing up of the hand after the string was cut proved the correctness of that opinion. Another device has been, to throw the patient into a cistern of cold water. If the disease be genuine, it is supposed that the patient will go to the bottom; but that if not, she will make an effort not to be drowned, and will struggle about.—We should not, however, consider this any proof; because nothing is so good in hysteria, as throwing a woman into cold water.—Therefore, in catalepsy, plunging the party in cold water, is likely to stop the paroxysm; and, if the paroxysm be stopped, then the person may struggle about, and yet not be an imposter.

It is said, however, that a very ingenious mode of discovering whether the disease was feigned or not, was put in practice by a physician (or at least by a *practitioner*) in the East. Pocock mentions, in his travels, that a case of this disease occurred in one of the favorites of a celebrated cailph; or, at least, that one of his favorite damsels pretended she was in this condition. Pocock says there was general sorrow throughout the palace; the women all sobbed; the eunuchs all groaned; and the Dey was distracted. He sent for all the royal physicians, ordinary and extraordinary. They used stimulants and warm fomentations to soften the limbs, but all in vain; when a man, who had cured the grand vizier (the prime minister) of some secret disease, was recommended to the Dey. This man was named Gabriel, and he obtained a promise, that no offence should be taken at whatever plan he adopted to

cure the lady. Being thus himself secure, the lady was brought into the presence of the court, with all the women around her, and covered with a fine muslin robe, flowing down to her feet. Gabriel ran up to the lady boldly; seized the hem of her garment; and endeavored to raise it, so as to expose her person. The lady modestly put down her hand to prevent the insult, when he immediately turned round to the caliph, and said—"Oh defender of the faithful, so and so is cured." Here was a case of complete deception, from the beginning to the end; and the poor man devised this ingenious means for detecting the cheat.

ECSTACY.

Description and Causes.—In this nervous affection the patient is lost to all external impression; but wrapt and absorbed in some object of the imagination. The muscles are sometimes relaxed; sometimes rigid as in slight tetanus; but the loss of voluntary power over them is not complete or universal, for these patients often speak in a very earnest manner, or sing. They are, as the term ἐκστασὶς imports, out of the body at the time, wholly engrossed in some high contemplation. This state is not uncommon as forming a part of religious insanity: and sometimes it runs into ordinary hysteria. Nervous and susceptible persons are apt to be thrown into these trances under the influence of animal magnetism: and grave authors assure us that the intelligence which then deserts the brain concentrates itself in the epigrastrium; or at the tips of the fingers; that people in that state read letters which are placed upon their stomach, or applied to the soles of their feet; answer oracularly, enigmatical questions; describe exactly their own internal organic diseases; and even foretell future events.

Sometimes there is continued insensibility for a few days or weeks; and sometimes for *many* weeks. Sometimes patients will eat, if food be put in their mouths; and sometimes not. Sometimes they will wake for a few hours, or perform certain actions, show some power over volition, and then fall into the same state. Some will open their eyes, and then fall asleep again. Some, in this state, are perfectly conscious of what is going on around them; but cannot make the least effort.

There is an instance mentioned of a female (for these strange things generally occur in females) who was presumed to be dead. Her pulse could not be felt, and she was put into a coffin; and, as the coffiin lid was being closed, they observed a sweat breaking out, and thus saw she was alive. She recovered perfectly; and then stated, that she had been unable to give any signs of life whatever; that she was conscious of all that was going on around her; that she heard everything; and that when she found the coffin-lid about to be put on, the agony was dreadful beyond all description—so that it produced the sweat seen by the attendants. We have seen a case (says Watson) of this extraordinary insensibility, where the patient continued for two or three weeks (with the exception of short intervals) in a state of insensibility, though not without signs of life; for the heart was still beating; and sometimes she performed, in this state, certain voluntary actions, and would afterwards be conscious of having done so.—Sometimes she would be unable to do any thing, and yet retain her consciousness, so as to mention it afterwards.

LETHARGY.

Description and Causes.—When consciousness and voluntary motion only are suspended, and a state resembling sleep is produced—differing from it in being more prolonged—the affection is termed "lethargy," and (by some writers) "cataphora." This is only another form of catalepsy; but it is not necessarily, though it is occasionally, complicated with hysteria. A case is mentioned in the "Philosophical Transactions" for 1694, of a man, twenty-five years old, residing near Bath, who slept nearly a month in a state of lethargy. In two years, he again fell into an inordinate sleep. At first, he ate, drank, and discharged his urine and fæces; but at length his jaws set, and he ate nothing more, and did not awake for seventeen weeks. It so happened that the barley was being sowed when he fell asleep, and when he awoke it was being reaped. In August he fell asleep again, and was bled, stimulated, and treated *secundem artem;* but did not wake till November.—The termination of the case is not given.

It is recorded in Plott's "Natural History of Staffordshire," that a woman slept forty days. In the "Medical Observations and Inquiries," there is an account of a woman who slept seven-

teen or eighteen hours, every day, for fifteen years. Dr. Good mentions seeing a lady, who was only in the habit of waking for one or two hours, two or three times a week, during the summer.

There was also a remarkable instance in New York City three years since, (in 1854,) where the subject had slept for five years, with only slight intervals of wakefulness of a few hours each.

Treatment.—In regard to the treatment of Catalepsy, we would recommend a similar course to that employed in Hysteria. In truth, Catalepsy is regarded by most authors as a variety of hysteria. In the cataleptic cases we have witnessed under the manifestations of the mesmerizer, we need no other treatment than that induced by Psychological impressions. It continues for a longer or a shorter period; after which the patient awakens entirely restored, or but slightly affected with more or less dullness of the sensorial faculties, which gradually passes off.

Lethargy may sometimes end in apoplexy, when the seat of the stupor is in the brain.

In ecstacy, or trance, the state of the intellectual powers is such that there are some impressions made from without; there is not a total insensibility to external things, for there are often visions and other dreamlike ideas which remain after recovery. In such cases the physician has little to do but recommend a hygienic course, and make such mental impressions as the circumstances may seem to indicate.

During a paroxysm of the catalepsy, friction should be applied to the surface and extremities, and particularly around the region of the heart. Afterward the disease must be treated on general principles; all the secretions and excretions regulated. The stomach, bowels, and skin, should be kept in a healthful tone. Administer *anti-spasmodics* and *restoratives*, with suitable *diet* and *exercise.*

In lethargy, an emetic should be administered, and repeated often, if necessary, and the feet placed in warm water.

NEURALGIA, PAIN OF THE NERVE.

General Observations.—The term Neuralgia is derived from two Greek words, which signify *nerve* and *pain*, αλγος and νευρον. Under this head, then, we include those forms of disease which consist of pain in a nerve, and nowhere else as we can perceive.

There may be no change of structure, no vascular excitement, no detectable alteration and no fever, simply pain in the nerve, and it is Neuralgia if it is seated in the nerves of the hip, knee, great toe or the face, although that which is seated in the fifth pair of nerves in the face is most generally considered as Neuralgia.—These neuralgic pains are excessively severe and troublesome, hence it is of importance to understand what has been ascertained of their nature, causes and cure.

Description and Causes.—What increases the difficulty of making out the cause and origin of these nervous pains, is that they may be produced by some source of irritation situated at a distance from the part in which the pain is felt. It may be placed in the brain itself, or in the spinal cord; or in the trunk of the nerve that supplies the affected part; or in one of the branches of the trunk, which branch is distributed to another part. If you strike the inside of the elbow in a certain way, so that the blow lights upon the ulner nerve, a peculiar tingling sensation is left in the little finger; that is, *not* in the part struck, but in the sentient extremity of the same nerve; and the same thing happens continually in disease. There is an excellent paper on this subject, by Sir Benjamin Brodie, published in one of the earlier volumes of the *Medical Gazette*, in which he has collected numerous and striking illustrations of the production of nervous pain by irritation situated in a distant part. Thus, to take a case in point; a man was admitted into St. George's Hospital on account of severe pain on the inner side of his knee. The joint was carefully examined, but no mark of disease could be detected in it. On tracing the limb upwards, however, an aneurism of the femoral artery, as big as an orange, was discovered in the thigh. This the patient thought nothing of; his only concern was the pain in his knee. Sir E. Home performed the usual operation for aneurism: and the moment the ligature was drawn firmly round the artery in the upper part of the thigh, the tumor ceased to pulsate, and the pain in the knee ceased also. This man died four or five days after the operation; and upon inspection of the limb after his death, the aneurism was found reduced to one half its former size; and some branches of the anterior crural nerve, which passed over it, and which must have been kept on the stretch previously to the operation, were seen to terminate in the part to which the pain had been referred on the inside of the knee. There is just such another case related by Dr. Denmark, in the *Medico Chirurgical Transactions*. A sailor was wounded by a musket-ball in the arm. The

wound healed; but the patient remained affected with agonizing pain, beginning in the extremities of the thumb and fingers, except the little finger, and extending up the fore-arm. His sufferings were so great that he willingly submitted to have the limb amputated: and the operation gave him complete and immediate relief. When the amputated limb was dissected, a small portion of lead, which seemed to have been detached from the ball when it struck against the bone, was found embedded in the fibres of the median nerve.

These examples teach us, when we receive complaints of pain in any part, and can discover no cause of pain in the part itself, to look for some possible source of irritation in the trunk of the nerve from which the part in question is supplied with nervous fibrils.

But the source of irritation may be further back than this: it may depend upon a diseased state of the spinal marrow, or of the brain. Of this we have had so many examples before us already, that we need not seek for any new illustrations of it.

Sometimes again, irritation applied in the course, or at the extremity of *one* branch of a nerve, will give rise to pain at the extremity of *another* branch of the same nerve. The sensation appears to be reflected, as it were, along the branch which is not, directly, the subject of irritation. Thus filaments of the phrenic nerve penetrate the diaphragm and communicate with the ganglia that lie around the cæliac artery; other filaments are distributed to some of the muscles about the shoulder; and in this way has been explained the well-known fact, that disease or irritation of the liver is very apt to be accompanied with pain in the shoulder.

Thus also we have pain in the glans penis, from irritation of the bladder, produced by a stone there; pain of the thigh and testicle, from irritation of the kidney: pain in the left arm, from disease of the heart: pain in the feet, from stricture and irritation of the urethra.

There are many pains also, plainly enough connected with irritation of distant parts, although no other nervous connection can be traced between the parts, except that which is afforded by the nervous centres. In such cases we must suppose that the morbid impression travels to the brain, and then the sensation is referred to the part affected through another nervous channel of communication. Dr. Wollaston was accustomed to relate the following story of himself. He had eaten some ice-cream after dinner one day; and his stomach did not seem to be capable of digesting it.

Some time afterwards when he had left the dinner table for the drawing-room, he found himself rendered lame by a violent pain in one ankle. Suddenly he became sick, the ice-cream was vomited, and instantaneous relief of the pain followed its ejection from the stomach. "A gentleman (says Sir Benjamin Brodie,) awoke in the middle of the night, laboring under a severe pain in one foot. At the same time other sensations, to which he was not unaccustomed, indicated the existence of an unusual quantity of acid in the stomach. To relieve the latter he swallowed a large dose of alkaline medicine. Immediately on the acid in the stomach having been thus neutralized, the pain in the foot left him."

The lesson that we learn from all these facts is this: that when we can find no explanation of a pain in the very spot in which it is felt, we should look for some condition that may explain it in the trunk of the nerve supplying that part: or in the parts supplied by other branches of the same nerve; or (if we are still unsuccessful,) we look for other indications of disease in the brain or spinal marrow: and if these be wanting, we should extend our search, and inquire whether there be any intelligible disorder or cause of irritation elsewhere, which, operating through the medium of the nervous centres, may have occasioned the sympathetic pain of which our patient complains.

Neuralgia certainly arises, in many cases, from cold; and in some it certainly arises from mechanical irritation of the nerve; such as is occasioned by the stumps of old teeth, or by an exostosis. Many cases have occurred, in which the bones of the cranium have been found in a state of exostosis, or carious, when the disease appeared; but this is not by any means necessary.

To show that in some cases of neuralgia the cause becomes obvious after a time only, we may state that Dr. Abercrombie quotes one case of exquisite neuralgia of the face, that ceased on the removal of a piece of china which had been there fourteen years; and another, of ten years' duration that ceased on the extraction of a tooth. Sir Henry Halford mentions the case of a lady who labored under violent tic dolourcux, till an apparently sound tooth was extracted—on account of the attacks being frequently preceded by uneasiness in it; and that a large exostosis was found at its root. He relates the case of a nobleman, who was liberated from the disease by exfoliation of a portion of bone from the "antrum maxillare." To ascribe neuralgia, however, to these causes, in most cases, is very unpathological.

The disease frequently occurs, when we cannot explain it at

all; and after death nothing has been found. Dr. Maculloch thinks that it arises from malaria; but then he ascribes almost everything to malaria. We have no doubt he is quite right in a great deal of what he says; but still he ascribes too much to malaria. He considers that almost every case of toothache arises from that source. Dr. Maculloch appears (to all but himself) to ride his hobby a little too much. Errors have been committed on the other hand; and teeth have been pulled out, where the pain did not arise from the teeth.

When the predisposition to the disease is strong, and especially when it rests on previous attacks, very slight causes are sufficient to develop it. A cold wind—especially when moist—and, at times, the slightest breath of air passing over the face, may develope facial neuralgia of the most tormenting kind. Even the touch of the razor will, at times, excite the utmost severity of suffering. In other cases, and in predispositions to other forms of neuralgia, exposure to damp and cold is, perhaps, the most common exciting cause. It must be admitted, however, that our acquaintance with both the occasional and predisposing causes of the disease is extremely limited, and sufficiently imprecise. It has been remarked, that it is generally allowed, that cold and moist countries are more favorable to neuralgia, wherever seated, than those which are mild and more free from humidity; and M. Andral adds, that he has seen the best effects from sending his Parisian patients on a journey to Italy. It is obvious, however, that the good effects may have resulted, in these cases, from mere revulsion—one of the most valuable agencies, which we can invoke in cases of neuralgia—rather than from the causes to which M. Andral ascribes them.

External injuries may give rise either to neuralgia or to neuritis. It has, indeed, been considered, that all such cases belong properly to the latter. The cicatrization of an old ulcer is said to have caused it; and when once it has been induced, the recurrence of the paroxysms is often brought on by mental emotions. It rarely happens, that they give rise to it *de novo*.

Diagnosis.—We propose in our diagnosis to speak of the symptoms of all species of Neuralgia, whether it be the nerves of the face as in *tic douloureux*, or pain in the faceal plexus; Lumber Neuralgia, or Dorso-intercostal Neuralgia; Crural Neuralgia, or Sciatica, etc.

The disease is marked by a violent, stabbing, plunging pain, increased (or even brought on, when it does not exist) by the slightest touch of the skin. When it is present, it is increased by the

least touch; but very firm pressure will relieve it. It is increased, too, when present, by blowing on the skin, or by the shaking of the room; and is then exactly like an electric shock. Sometimes, between the shooting pains, there is constant aching; and sometimes the part feels painfully benumbed. We have known the neighboring parts, which were not in pain, benumbed. There is generally no swelling or redness. There may be; but it is not essential to the complaint. Tic douloureux generally takes place in the course of some well known nerve; and hence the disease is now more appropriately called "neuralgia"—"*nerve*-ache."—Sometimes the pain does not follow the course of a nerve; but still we must consider it according to general rules. Sometimes it is not an aching of a nerve, but the whole of a part is affected together; so that the disease will exist in the breast, in the heart, or in the pericardium; apparently not following the course of any nerve, but affecting various nerves in the mass. If the nerve affected have small muscles in the neighborhood, they are generally twitched; so that, when a patient has the disease in the face, we see the side of the face catching every moment. From these circumstances some have called the disease "neuralgia *spasmodica;*" but most improperly, because they are only incidental, and the severest neuralgia may occur without them. If the disease be dreadfully severe, as sometimes it is, then we have convulsions of the large muscles.

Nerves also frequently suffer pain from rheumatism. There is decidedly a rheumatic neuralgia. The exquisite neuralgia, described as tic douloureux, may arise from those vicissitudes of temperature that occasion rheumatism, and may be rheumatic. But pain, not of that description, though perhaps very acute, perhaps dull and aching, (as is usual in rheumatism,) is every day witnessed in the situation of nerves, in persons who have rheumatism in those situations, and who have been exposed to cold, or perhaps cold and wet; and it yields as readily to the treatment of rheumatism, as the ordinary rheumatism of other parts. The neurilema, which is a fibrous membrane, is probably still more affected than the nerve, since rheumatism is chiefly a disease of the fibrous membranes.

In rheumatic neuralgia we observe all the varieties of suffering occasioned in other parts by rheumatism; sometimes acute pain, with tenderness, heat and even throbbing, and aggravation of the pain by heat; sometimes dull aching only; sometimes pain on motion, pressure, or other modes of mechanical

irritation; sometimes remittent, intermittent, or even periodical, pain. The pain is sometimes exquisite and sudden, assuming the character of tic dolourenx, which, we may remark, not only when rheumatic, but sometimes when not apparently so, may assume a periodical type. It is the clear situation of the pain in a nerve, and not the character of the pain, when it is not like the pain called "tic douloureux," that justifies us in rheumatism to pronounce it neuralgic.

The nerves chiefly attacked by rheumatism, are the sciatic and the branches of the fifth. It is very frequently inflammatory; so that the surface is tender, hot, swollen, and even red. Sometimes no marks of inflammation are discoverable, and warmth and other stimuli relieve. In the case of the face especially, (one side only of which is usually affected, and perhaps not only the nerves, but some of the surrounding parts,) there is a great tendency to periodical intermission, and the paroxysms usually occur in the evening.

The pain, in neuralgia, generally occurs suddenly; but at other times, a slight sensation of itching or of heat, or creeping or numbness is felt in the part, which gradually becomes more and more intense. At other times, again, the paroxysm of neuralgia is preceded by a feeling of coldness and numbness. The pain is commonly extremely acute and lancinating, taking place instantaneously, and extending along the nerves like an electrical shock—whence these pains have been termed, by a well known writer on neuralgia, *Fulgura doloris*.

When the pain is at its height, it seems as if burning needles were thrust into the affected parts. After a time, the agony diminishes, and is alternately replaced by a sense of numbness, which remains until the pain recurs. Exacerbations and remissions of pain take place at intervals, until ultimately the suffering becomes endurable, which it scarcely was at the height of the paroxysm.

This cruel malady occurs most commonly in persons who exhibit, in other respects, the signs of an unsound, or deranged, or debilitated system. It is more apt to fasten upon those who are pale, and asthenic, and upon individuals whose powers have been broken by advancing years. It is not unfrequently attended with some obvious disorder of the digestive organs, and ceases or is mitigated when that disorder is corrected. Sometimes it is clearly connected with a disposition to rheumatic affections; coming on in persons who suffer rheumatism in other parts, and even alternating with rheumatism in other textures. It is observed to be

common among fishermen, and the inhabitants of marshy districts; and in some of these sufferers it may be attributable to their habitual exposure to cold and moisture; and this nerve, lying superficially, and being unprotected by any artificial covering, is more likely, perhaps, for that reason, to be affected by vicissitudes of temperature; but in many of these cases the disease seems to be produced by the *malaria*, which is prevalent in those situations. The paroxysms are then not only intermittent, but periodical, and they will frequently yield to the remedies which have been ascertained to be specific against ague and its various modifications.—Sometimes the facial neuralgia is evidently dependent upon some general state of the system; for it will cease in the face, and fix itself in some other place; and in this way it may come to occupy several distant parts of the body in succession. There are other cases again in which the disease has a local origin, and results from some diseased bone, or exostosis, in the neighborhood of the painful spot.

There is a kind of face-*ache*, which cannot properly be reckoned as a species of neuralgia, for it does not occur in short stabbing paroxysms, nor is the pain acute enough to entitle it to the name of tic douloureux; but which is very common, very distressing, and under ordinary treatment sometimes very intractable. It is called by some a rheumatic pain; it occupies the lower part of the face, the jaw principally, and the patient cannot tell you exactly whereabouts it is most intense. It is often thought to proceed from toothache, and bad or suspected teeth are extracted, but with no good effect.

Tic douloureux is the principal form of severe neuralgia which you may expect to meet with, in regard to acuteness of suffering and difficulty of cure. Two other forms, more common, and luckily more tractable, are generally spoken of under the same head—*sciatica* and *hemicrania*. We have very little to say, in this place, of either of these. Sciatica, or pain radiating from the sciatic notch, and following the course of the sciatic nerve, is sometimes an inflammatory complaint, and yields to the remedies of inflammation—sometimes it is plainly a part of rheumatism; sometimes, again, it results from irritation within the pelvis, affecting the nerve before it emerges externally; this irritation may be connected with a disordered state of the kidney, and it is in such cases that the oil of turpentine is of so much use; lastly, it is sometimes a purely nervous and neuralgic pain: and then the

treatment applicable to facial neuralgia will, *mutatis mutandis*, be applicable to it.

Hemicrania is simply headache, confined to one side, and occupying generally the brow and forehead, but sometimes affecting very exactly one moiety of the head. It is the *migraine* of the French, the *megrim* of our vernacular language; each of these terms being obviously traceable to the same Greek root. It is often attended with sickness; and in many instances it is periodical, coming on every day at a certain hour, lasting a certain time, and then subsiding. Like the other forms of neuralgia, hemicrania may be produced by various causes, which are, however, almost all of them such as tend to debilitate the system: it sometimes occurs in connection with hysteria; sometimes it plagues women who have suckled their infants too long; sometimes it acknowledges the same cause as ague; and sometimes also it occurs independently of all other disease, and when no obvious exciting cause can be traced.

Treatment.—It must be evident to every practitioner who takes but a superficial view of these nervous affections, that the remedies used must be of a varied character, that causes must be sought out and removed, and that a general or constitutional treatment will in most cases be necessary. For Facial neuralgia or tic doloureux we have oftener found the Stimulating Liniment to afford relief, than any other remedy, namely: equal parts of tincture Camphor, Lobelia, and Capsicum, with some essential oils; this applied freely to the parts affected with a mild stimulating aperiant will generally afford relief.

Coldness indicates stimulants. Among internal stimulants, besides general diet, ammoniated tincture of guaiacum is one of the best. It should be exhibited in such quantity and frequency as to keep the patient comfortably warm. A dose of half a drachm may be sufficient, or six drachms may be required; and a frequency of three times in twenty-four hours may be sufficient, or the dose may require repetition every two hours; and in general both may be diminished after the remedy has been continued for some time; because it stimulates more and more, and its effects last longer. When there is debility, and especially paleness, iron in full quantities operates in the most salutary manner; much more so than quinine. The hot vapor bath, the douche, electricity, sinapisms, and a full course of medicine, if relief is not attained, should be employed.

If it is caused by decayed teeth they should be removed. In

that form of neuralgia which affects the spine, the addition of Spirits Turpentine to the Liniment, above mentioned, will be found beneficial. We once made a most perfect and sudden cure of tic doloureux which had resisted a great variety of remedies, by isolating the patient, and taking a few electric sparks from the part effected.

We find in most Old School authors that the sesquioxide of iron is very much extolled; as this is a harmless remedy, it may be administered by the Reform Physician, the dose is from 15 to 20 grs.

In tic doloureux, there is generally more or less disorder of the digestive organs, and hence the stomach should be cleansed with an emetic, followed by the use of spiced bitters, and an occasional dose of cayenne, bayberry, and nerve powder, especially on going to bed. In chronic cases, it is advisable to administer a few courses of medicine.

The affected part should be bathed frequently with the strongest tincture of cayenne, and if this does not afford relief, a cloth or flannel moistened with the tincture may be applied, together with a heated stone wrapped in a damp cloth.

Particular attention must be paid to the bowels, using enemas, or some other appropriate remedies, if they are confined.

Lobelia pills, or an infusion of scullcap, will be found an excellent medicine in this complaint. The stimulating tea, administered to the extent of producing perspiration, will also afford relief in many instances.

When the disease occurs in a rheumatic individual, and especially when, as is sometimes the case, it alternates with rheumatism of other tissues, the remedies which have been found useful in rheumatism deserve a fair trial.

When all has been done that can be done towards restoring or improving the general health, we may turn our thoughts to local remedies. It is plain that these must be inefficient when the local pain results from constitutional causes that are unredressed, or perhaps incurable. Yet even then topical measures may soothe the pain for a while.

One of these topical expedients, which promised well when first thought of, is the division of the trunk of the painful nerve, so as to cut off the nervous communication, through that main channel at least, between the painful part and the brain. This was originally proposed by Dr. Haighton, and was at first attended with some little success; but in a great number of instances it

has signally failed, as indeed might have been expected. In Dr. Pemberton's case the several branches of the fifth pair were cut by Sir Astley Cooper; but in vain. When there is any reason to think that the disease has a constitutional origin, or a local *distant* origin, the division, or even the excision, of a part of the nerve must be perfectly useless. It would be as reasonable to expect to cure gout by cutting the nerve that goes to the great-toe; or to perform castration with the view of remedying the pain in the testicle which is apt to be produced by the passage of a calculus through the ureter. Nevertheless there are cases, in which the division of the nerve, or some other surgical operation, is required. If you can make out that there is any tumor pressing upon or is adherent to some part of the nerve—or if some foreign body, as a splinter or a shot, should be ascertained to be in contact with the surface of the nerve, or to be entangled in its substance, the tumor of the foreign body may be removed by the knife, with the strong expectation that a cure may be thus effected. And if this cannot be done, or if the nerve itself be altered in structure, either from disease or injury, under those circumstances it will become a very proper subject of deliberation whether the nerve should be divided, or even the limb amputated.

Prof. J. H. Carnochan, of New York, has, within the past few years, divided the 2d branch of the fifth pair, in several cases, with perfect success, and the recovery was sudden and lasting, but we feel quite sure if our remedies are perseveringly applied, that this operation will seldom be necessary.

Where neuralgia becomes periodic, Quinia will be indicated. The iodide of potassium has been highly recommended; in some cases it acts like a charm in doses of from five to ten grains, three or four times a day.

EPISTAXIS—BLEEDING FROM THE NOSE.

Description and Causes.—Επισταζω, *to distil from*, is the origin of this name. Bleeding from the nose is generally a very harmless affection, and seldom requires the attention of the Physician, yet there are some points relating to this hemorrhage which it may be worth while very briefly to mention.

Sometimes it is a remedy; sometimes a warning; sometimes

really in itself a disease. The readiness with which the mucous lining of the usual passage pours forth blood is familiar to the experience of every schoolboy, who "often wipes a bloody nose." A slight blow, brisk exercise, a strong bodily effort, a fit of sneezing, or the summer heat, is sufficient, in many boys, to make the nose bleed; and this facility of hemorrhage furnishes, often, an index of some unnatural state of the circulation; and especially of undue fulness of the vessels of the head. But the import of this symptom is not always the same. Epistaxis may, indeed, be taken as affording an epitome of the various forms of hemorrhage by exhalation. In childhood and early youth it is idiopathic, dependent upon active congestion, and probably arterial. It is nature's favorite mode of blood-letting, and as she indicates no other, we should learn that there *is* no other. In old age it is symptomatic, the result of passive or mechanical congestion, and probably venous. In some adult persons it happens periodically, and is habitual: and its *suspension*, rather than its *occurrence*, becomes a token of disease or of danger. In young women it is not seldom vicarious of suspended menstruation: in men it is apt to take the place of hemorrhois. Lastly, it may proceed from disease in the nares themselves; or form a part of a more general hemorrhagic disorder.

It is unnecessary to go at length into the phenomena of epistaxis. The main phenomenon becomes obvious at once both to the patient and to those around him: and the accessory and incidental circumstances are easily discoverable when the attention is aroused to them by the sight of the blood. Usually the blood flows *guttatim;* in a succession of drops: but these may follow each other so fast as to constitute a little stream. Sometimes a few drops only fall; sometimes several pints are lost. A moderate hemorrhage of this kind is generally succeeded by a sense of relief and refreshment. A large efflux of blood may cause pallor, faintness, debility, exhaustion, even death.

In the nose there is a considerable net-work of blood-vessels expanded on the internal surface of the nostrils, and only covered with a thin tegument: hence, upon any determination of a greater quantity of blood than ordinary to the vessels of the head, those of the nose are easily ruptured. In general the blood flows only from one nostril; but in some cases it is discharged from both, then showing a more considerable disease.

Persons of a sanguine and plethoric habit, and not yet advanced to manhood, are very liable to be attacked with this com-

plaint; females being much less subject to it than males, particularly after menstruation has commenced. Peculiar weakness in the vessels of the part, and the decline of life, may also be considered as predisposing causes. Great heat, violent exertion, external violence, particular postures of the body, and everything that determines the blood to the head, are to be looked upon as its exciting causes.

Epistaxis comes on at times without any previous warnings; but at others, it is preceded by a pain and heaviness in the head, vertigo, flushing in the face, heat and itching in the nostrils, a throbbing of the arteries, and a quickness of the pulse. In some instances, a coldness of the feet, and shivering of the whole body, together with costive bowels, are observed to precede an attack of this hæmorrhage.

The complaint is to be considered as of little consequence when occurring in young persons, being seldom attended with danger; but when it arises in those who are more advanced in life, flows profusely, and returns frequently, it indicates too great a fullness of the vessels in the head, and not unfrequently precedes apoplexy, palsy, etc., and therefore in such cases is to be regarded as a dangerous disease.

When this hemorrhage aris es in any putrid disorder, it is to be considered as a fatal symptom.

Diagnosis.—Simply hemorrage from the nose.

Treatment.—Wetting the head with cold water, and bathing the feet in warm, at the same time, will often stop the bleeding. A snuff made of the leaves of witch-hazel inhaled into the nostrils, will also stop it.

In obstinate cases, immerse the lower extremities in luke-warm water, and let the patient use freely a tea made of witch-hazel, with the addition of cayenne, to which may be added a little beth root. Opening the bowels at the same time by stimulating injections, will in no case fail to make a derivation of blood from the vessels of the head. Steaming the lower extremities, will also have a tendency to draw the blood from the head and facilitate the operation of other remedies.

As a styptic, the powdered charcoal is highly recommended. It may be used by snuffing, or it may be applied by means of tents, moistened with water and rolled in the powdered charcoal, and introduced into the nostril. Any of our vegetable astringents may be used in the same manner advantageously.

It may be possible that in some very severe case brought on by

general debility, in addition to what has been already prescribed, a course of medicine will be requisite, followed by tonics. Persons who are subject to this complaint should be exceedingly careful that the extremities are kept warm, and the surface moist, and avoid all those circumstances which might either determine the blood to the head, or prevent its free return from it.

It sometimes happens that when the blood stops outwardly, it nevertheless, continues inwardly, and prevails to such an extent as to threaten suffocation, particularly when the patient falls asleep. In such cases a piece of sponge should be fastened to a string or thread, and be passed up the nostils by means of a pliable probe, afterwards drawing it back, so that it will prevent the hæmorrhage by pressure; this should be kept in the nostrils for some length of time. The clotted blood should not be removed until the mouths of the blood vessels are healed.

A very simple mechanical remedy has been lately announced by Dr. Negrier, of Angiers; who discovered it (he says,) by mere accident. The patient is to raise one or both of his arms above his head, and to hold them for some little time in that position.—Dr. Negrier declares that through an experience of three years he has never known this method fail to arrest the bleeding. His explanation of its *modus operandi* is not very satisfactory. The expedient itself is however so easy, so prompt, and even if unsuccessful, so harmless, that its real value deserves to be tested—and will soon probably be tested—by an ampler trial.

We have heard of some stubborn cases that were relieved by a free use of cayenne with the food. Powdered charcoal used as snuff has stopped some cases.

If this hemorrhage is caused by a metastasis of the menstrual flux, emenagogues must be given and the treatment prescribed for obstructed menses, or if from any other obstruction, let the cause be diligently sought out and removed.

BRONCHOCELE, GOITRE—ENLARGEMEFT OF THE THYROID.

Description and Causes.—This disease is called Bronchocele from *βρογχος the wind-pipe* and *κηλη a tumor*. The French give it the name of Goitre which is supposed to be a corruption of the Latin word gutta, *the throat*. It is known in England as the *Derbyshire neck*; from its frequent occurrence in that county.

The term Bronchocele has been sometimes applied indiscriminately to all protuberances or swellings in front of the throat; or at any rate, to all enlargements of the thyroid gland; whereas it should be restricted to *hypertrophy* of that part: an exaggeration of its natural structure, with augmentation of its volume.—The texture of the gland becomes coarser; its blood-vessels grow larger and more numerous; its cells are magnified, and filled with a thick, viscid secretion. It usually presents a soft, smooth, elastic tumour, which is neither painful nor tender, nor discolored. The lobes of the gland become more obvious. Sometimes the whole tumour is irregularly lobulated: sometimes the exact form and relative proportions of the gland are preserved, each lobe and portion being equally increased in size. Occasionally there is a soft uniform or irregular swelling, without much distinction of parts. Alibert states that the right lobe is more frequently enlarged than the left. Mr. Rickwood found it so in every instance of bronchocele that came under his notice in the neighborhood of Horsham.

Unless the tumour be very large, it follows all the motions of the larynx: and this is a point of considerable importance whenever the diagnosis is at all doubtful. It is just possible that an enlarged lymphatic gland, or an encysted tumor in the neighborhood of the larynx, or even a collection of pus thereabouts, might, in some degree, embarrass the diagnosis. But, by placing the head and neck in different successive positions, swellings of this accidental kind may, in general, be ascertained to be unconnected with the larynx; and they do not follow its up and down movements when the act of deglutition is performed.

Of the causes of goitre, nothing satisfactory has been offered until of late. It was at one time universally supposed to be owing to the drinking of snow-water from the summits of lofty mountains by the inhabitants of the valleys beneath—but the fact that the disease exists in countries in which snow is never witnessed—as in Sumatra—was sufficient to dispel this idea. In Captain Franklin's expedition to the polar sea, goitre was found to be very prevalent at Edmonton, where the soil is calcareous. It was discovered that the disease attacked those only who drank of the water of a certain river—the Saskatchanan—and that the natives, who confined themselves to *snow-water* in the winter, and drank of the small rivulets which flow through the plains in the Summer, are exempt from it.

These facts naturally draw attention to the water of the district

as a cause of the disease; indeed, in many places, it has been usual so to ascribe it. At Nottingham, in England, where it prevails, the common people refer it to the hardness of the water—that is, to its impregnation with calcareous salts, and a recent writer on bronchocele, (Inglis,) affirms that the presence of magnesian limestone, always implies the co-existence of the disease. If to this testimony we add that of a recent writer in India—who states that in the course of his professional inquiries, which extended over 1000 square miles, and were prosecuted without any regard to theory, no instance occurred in which goitre prevailed to any extent, where the villages were not situate on or close to limestone rocks—the evidence is strong, indeed, that goitre may be owing to the drinking of water containing calcareous salts. Still, it is proper to observe, that there are many places, as the Valois, in which there are no limestone formations; and in other cases where goitre prevails, the water contains no calcareous salts. Although it is probable, therefore, that water, containing calcareous salts, may afford a predisposition, something, at present inscrutable, in the locality is necessary for the development of the disease; and, perhaps, after all, we know no more in reality, of the immediate cause of this endemic, than we do of that of endemic diseases in general.

The disease occasions a swelling in the front of the neck, in the situation of the thyroid gland—a swelling produced, in fact, by an enlargement of that gland. No disease would be called "bronchocele," although a swelling in the neck, unless it were the result of an enlargement of the thyroid gland. This tumor is, for the most part, soft; and neither painful when left to itself, nor when touched; and therefore it is not tender. Although it is usually soft in almost every part, yet occasionally we find it hard in some one part—of a cartilaginous, and (indeed) sometimes of a bony hardness. It may attain a large size, or it may be very small; it may, in fact, be merely a general fulness of the gland, or a slight general enlargement. Very frequently it is enlarged chiefly, or almost entirely, in the centre, or on one side; and from being, at the beginning, a slight fulness of only one lobe of the thyroid gland, it may attain so enormous a size, as to hang down to the knees. Fodere, in his treatise on the disease, mentions an instance of a tumor which weighed seven or eight pounds; and Alibert mentions a tumor occuring in a man thirty-eight years of age, which reached to the middle of the chest, was as large as a pumpkin, and looked like a pelicans's pouch. There is also one

mentioned, as existing in a female upwards of sixty years of age. It extended from ear to ear; descended below the mammæ; impeded deglutition and respiration; and pressed on the "meatus auditorious," so as to close it up. A German author mentions an instance of a goitre descending to the knees.

Its external appearance is sometimes uniform and sometimes knotty; and on cutting into the tumor, we find cells of all sizes, with contents of various consistency. Sometimes the contents are found gelatinous, and sometimes soft. Sometimes one particular part is cartilaginous, or even ossified; containing a quantity of calcareous matter. A variety of appearances are presented in various parts of the same tumor. Occasionally the tumor suppurates; and sometimes disappears spontaneously. The blood-vessels of the part are found very much enlarged.

Bronchocele is not, *in itself*, a painful disorder: nor does it taint the system, or affect the constitution in any way. It has no character of malignancy about it. It is always, however, a deformity; and, by its mechanical effects, that is, by its weight when large, and by the pressure it exercises on contiguous parts, it may occasion great distress, and suffering, and even death itself. The size, and the effects, of the tumor both vary much in different cases; but its *injurious* effects are not always, though they are generally, in proportion to its bulk. Sometimes there is no more than a slight fulness of the throat, which some persons think rather graceful than otherwise. Now and then, the swelling, after its first commencement, develops itself with great rapidity; but its ordinary progress is slow. It often continues for months, or years, without reaching any extreme or very troublesome magnitude. Sometimes it remains stationary for a considerable time, and then *suddenly* increases without any apparent cause. The worst effects of bronchocele are its interference with the circulation, and with respiration. By its pressure it may obstruct the free descent of the blood through the veins of the neck, and give rise to headache, giddiness, noises in the ears, confusion of thought, and a turgid condition of the head and face. Or, by pressing upon the wind-pipe, it may cause hoarseness, wheezing, and dyspnœa. It may even impede deglutition. But these effects, do not depend altogether on the actual size of the tumor.—A very large goitre may produce no other inconvenience than what results from its weight and its unseemly appearance. It may surround all the front and sides of the neck like a thick collar, and rise as high as the ears; or it may hang down, in a pendulous

lump, and be supported upon the chest. Nay, the tumor is said to descend, in some rare instances, so low as to be in contact with the abdomen; and Alibert mentions one case in which the swelling was of a tapering cylindrical shape, and reached to the middle of the thigh. On the other hand, a small tumor, not bigger than one's fist, especially if it happens to occupy the central portion, or what is called the isthmus, of the gland, may so press inwards upon the trachea as materially to hinder the breathing, and even to threaten suffocation.

Cretinism has a close, but an ill-understood, connection with goitre. Wherever cretinism is endemic, bronchocele never fails to be abundant. But bronchocele may prevail in a place where there are no cretins. With but few exceptions, cretins are goitrous; whereas many of those who have bronchocele are not affected with cretinism. The two disorders either spring from the same cause, requiring for their joint production that this cause should be in active operation: or, if they have separate causes, these frequently co-exist and act in combination. It is said, that when both parents are goitrous for two generations in succession, the offspring, being in the third generation, are sure to be cretins. Certainly cretinism is most common where bronchocele is most common, and especially in mountainous places. It occurs in the Pyrenees as well as in the Alps, in the mountains of Syria, in the hilly parts of China, and the Himalayan regions. Yet cretinism is confined within much more limited bounds than goitre. Saussure, Fodere, and Dr. Reeve, agree entirely as to the circumstances under which cretinism appears to be most commonly engendered in Switzerland. They say that the disease is usually met with in valleys which are nearly surrounded by high and steep rocks, where there is but little circulation of air, and where the inhabitants are exposed to the direct rays of the sun, and to the reflection of them from the rocks; and also to effluvia from marshes. It is in the filthy habitations built in these close, hot and humid situations, that cretinism abounds most. The children that are taken away from the low valleys, and carried up, when young, into the high grounds, escape the disease; or even get the better of it if removed soon enough. And the amendment is said to be perceptible even in a very few days. These facts have led many persons to conclude that cretinism, if not bronchocele, depends on some condition of the *air*. It appears probable that the exciting cause of both is the same, and that the local circumstances just now mentioned, operate as predisposing causes only. Cretinism, as well as goitre, was observed,

by Ramond, in the "open, well-watered, and well-ventilated valleys of the Pyrenees."

Although the tumor of bronchocele is generally sufficiently characteristic, it may sometimes be confounded with other affections. The thyroid gland is liable to inflammation; but this disease may be distinguished from goitre, by the hard unyielding character of the swelling; by its being accompanied with redness of surface, increased heat, and pain on pressure; by the suddenness of its appearance; by its not attaining the size of a goitrous tumor; and by its tendency to suppurate. The gland is sometimes affected with scirrhus. In this case, however, only a small portion is usually affected; and differs from bronchocele in its extreme hardness, and in being generally the seat of severe lancinating pain. In scirrhus, also, the swelling seldom attains a large size. Encysted tumors sometimes form in the course of the trachea; and may be distinguished from bronchocele by their situation, by their compact form, and by their giving a sense of fluctuation. Aneurism of the thyroid arteries may be known from goitre by the pulsation which accompanies the former affection, by the situation of the swelling, and by its diminishing or disappearing under firm pressure.

Treatment.—This disease is evidently produced by an obstruction in the natural action of the function of the gland—hence we shall find stimulating linements will prove advantageous in many cases, especially if applied with friction.

One very important point in the *treatment* of bronchocele is obvious; the removal of the patient, if that can be done, from the infected locality. When this has been effected, or when the disorder occurs sporadically, as it sometimes does, we may administer drugs with a better hope and advantage. A great variety of empirical remedies has been recommended for the cure of bronchocele, concerning most of which it would be a waste of time to speak at all. The remedy which, as an internal medicine, has of late years superseded all others, and acquired the reputation of a specific against goitre, is iodine; and it certainly has a remarkable influence over the genuine unmixed form of the disease, whether endemic or sporadic upon the hypertrophied gland; yet it does not, perhaps, merit the title of specific.

The iodine compounded with the potassa is now the favorite method of administration, and is not very objectionable, though we suppose a large over-dose might prove injurious.

There is one grain of iodine in four ounces of the liquor. An

ounce would, therefore, be a very *safe* dose, but you may begin with a couple of drachms, and increase the quantity if need be, gradually: for not only Dr. Manson, but Dr. Copland also, who states that the remedy has been very successful in his hands; advocates *small*, unirritating, what are sometimes called *alterative* doses. Simple friction is said to have had the effect of diminishing the tumor; and friction with some ointment or liniment containing iodine should be employed whenever the external exhibition of the remedy is contra-indicated: or *in addition* to its internal use. There is an authorized form for that purpose also in the Pharmacopœia—the *unguentum Iodini Compositum*. A small portion of this may be rubbed upon the tumor night and morning. We need not add that besides great care in watching for the specific ill effects of the iodine upon the system, no less care is to be taken in correcting the state of any other function which may be faulty, and in improving the general health.

We are quite sure, however, that the burnt sponge will prove equally efficacious with the iodine: the ashes of the sponge may be taken in syrup, and also mixed with lard and applied externally. The discutient ointment or the extract of the Phytolacca dec. (Poke root) may also be used as an external remedy. Thorough constitutional treatment in bad cases will be necessary with a free use of our alteratives, such as the Sarsaparilla, Stillingia, Burdock and the various compounds of these agents.

Prof. R. L. Newton recommends the irritating plaster and when the tumor becomes painful, etc., applies the slippery elm poultice, and then causes the patient to turn his head to the side on which the gland is most enlarged, and while in that position he passes adhesive straps over it and around the throat towards the shoulder. When the patient turns his head straight, the proper pressure is then excited on the gland and a cure is effected.

CYNANCHE PAROTIDÆA—MUMPS.

Description and Causes.—The term parotitis, designating inflammation of the parotid gland, is derived from παρους, the Greek name of this gland. There are two varieties of this disease, the one primary or idiopathic, or, as called by some, specific, and the other accidental or secondary and symptomatic. To the first only the English term mumps is applicable. It is most apt to attack

young persons, especially those of the male sex, just before the approach of puberty: but it seldom appears after the age of twenty-five or thirty years. It rarely attacks the same person more than once in his life; and on this account, as well as from its sometimes appearing about the same time, or in quick succession in several persons, it is commonly alleged to be contagious. As yet no morbific matter of a peculiar nature, and capable of causing the disease in another and healthy person, has been secreted by, or at least has been detected on, a patient with parotitis. There are, besides, abundance of cases in which no trace of contagion could be ascertained, but which originated from exposure to cold or analogous causes.

This complaint often prevails epidemically: when it affects one person in a family or school, it usually affects several others, simultaneously or in succession. It chiefly attacks children and young persons. There can be no doubt that it spreads by contagion. These are remarkable circumstances, and give the malady a peculiar and specific character.

Another curious circumstance connected with the disease, and one which has some bearing upon its treatment, is, that, in many cases, upon the subsidence of the swelling of the neck and throat, and particularly when it subsides *quickly*, the *testicles*, in the male sex, become swollen and tender, and the *mammæ* in the female. It is said, but we do not know whether the observation be constantly true, that the testicle, or the breast, of *the same side* with the inflamed parotid, suffers. Sometimes the testicle wastes away after the swelling recedes; a circumstance which is occasionally known to happen when inflammation of the part arises from other causes. This, however, is not usual. In general the inflammation subsides and ceases in the one gland as it does in the other; the swelling is neither very painful nor long continued. But sometimes a more serious transferrence takes place, from the testicle to the brain.

Age certainly offers a predisposition; for the disease is most common in children, and the proportion of males attacked is greater than that of females. One attack appears to produce an effect upon the constitution, which renders the individual less liable to the disease again; for second attacks are not common. The disease unquestionably appears epidemically, or rather endemically—that is, we see it in a particular locality prevailing more than in others, and perhaps exclusively; showing, that there are local causes which give rise to it, under probably favorable atmospheric influ-

ences—or the disease must be esteemed endemico-epidemic in its character. Inflammation of the parotid often, too, occurs as sympathetic of other diseases; as in the course of severe fevers; but to this variety reference is made elsewhere. In some of the visitations of cholera, it was noticed, especially towards the end of the epidemic. This was the case in Paris and in Rostock. It is, indeed, extremely difficult to decide the question, in consequence of the persons attacked being generally in the same locality, and more or less exposed to the same influences.

Diagnosis.—Parotitis, or (in plain laguage) "the mumps," is a swelling of one or both parotid glands; attended with an increase of heat in the part; extending to the submaxillary and sublingual glands and affecting the rest of the salivary glands. The disease is attended by slight feverishness; and lasts in general, three or four days.

The disease is ushered in by the ordinary general phenomena of internal inflammation; after which, or simultaneously, a sense of pain or uneasiness is experienced in the region of the parotid, with difficulty of mastication, which becomes, at times, almost impracticable. Sooner or later, beneath one or both ears, more or less tumefaction is observable, which is commonly red and hot, and extremely painful on pressure. Occasionally, the pain is so severe as to deprive the individual of rest. When the inflammation is considerable, the swelling extends to the submaxillary glands, to the tonsils and the neighboring parts of the pharynx, so that deglutition becomes very difficult and painful. The tumor in such case, is generally of a deep red, tense and glossy; and if both sides are affected at the same time, the face becomes of an enormous size. The swelling rarely goes on augmenting more than four or five days; after which it gradually subsides, when the termination is about to be by resolution.

Cases occasionally occur, in which the swelling is rather œdematous than highly inflammatory, and in which it presents neither redness, very marked resistance, acute pain, nor difficulty in moving the jaws. The general symptoms, may, in such cases, be slight also.

Most commonly the disease terminates by resolution. About the fourth or fifth day, the swelling, pain and fever gradually subside, and the inconvenience disappears. It has been asserted, that about the fourth or fifth day, a copious perspiration bathes the parotid region and the parts of the neck, ears and head in its vicinity; and that, in other cases, a general perspiration precedes the gra-

dual softening and disappearance of the tumor—but there is nothing constant in the order of the phenomena. Those mentioned by Andral are often seen in cases where the cutaneous transpiration has been arrested, for a time, in consequence of febrile or inflammatory indisposition.

In some cases—but they are rare—inflammation of the parotid ends in suppuration; the tumor points and fluctuation is manifest.

The swelling usually continues to increase till the fourth day; but from that period it declines, and in a few days more goes off entirely, and then the febrile disposition likewise ceases. As the swelling of the fauces subsides, it not unfrequently happens that tumors affect the testicles in the male sex, or the breasts in the female; but these generally go away in a few days. Sometimes the tumor in the fauces becomes suddenly suppressed, and it is not accompanied with the last mentioned symptom; or if so, this is quickly repressed; in which case the fever becomes very considerable, is attended with delirium, and at length proves fatal.

Profuse ptyalism sometimes occurs without any obvious cause, and is then said to *idiopathic*, or spontaneous; and this is a circumstance which it concerns you to be aware of, both as practitioners and as medical jurists. The same *tenderness and swelling* of the salivary glands, the same copious *secretion and excretion of saliva*, nay, even the *same fetor*, or a smell which can scarcely be distinguished from it—the same collection of symptoms as indicating the specific action of mercury upon the human system—will arise sometimes (but very rarely) when not a particle of mercury has been administered. Several other substances are well known to have the occasional effect of producing an increased, and even a profuse flow of saliva; preparations, for example, of gold, of copper, of antimony, and of arsenic, digitalis and the iodide of potassium; and sometimes opium. Now and then ptyalism is met with, a symptom among others, of pregnancy. Occasionally it results from some local irritation within the mouth; from a decayed or misplaced tooth. It is a fact that *salivation* may occur as an *idiopathic complaint*. In the twenty-sixth volume of the *London Medical and Physical Journal*, there is an instance of it described by Mr. Davies, in which two or three pints of saliva were discharged daily for some time. This flux at length ceased under the use of laxative medicines. In the second volume of the *Transactions of the College of Physicians* is an extraordinary example of the same thing, related by Mr. Power. A young ady, of sixteen, spat from sixteen to forty ounces of saliva daily

for upwards of two years. Mr. Power believed that the ptyalism in this case was originally excited by wool, which he found in a fetid state in her ears. In the *Revue Medicale* there is an account given of a patient who was cured of a spontaneous ptyalism after spitting nine pints daily for nine years and a half. You may see another instance, as related by Dr. Prout, in the old series of the *Annals of Philosophy*. Dr. Peraira, states that he has seen a dozen such cases.

Treatment.—The mumps do not often require the assistance of medicine; and all that is in general requisite is, to keep the head and face warm, to avoid taking cold, and open the bowels by the mildest laxatives; but should the tumor in the neck suddenly disappear, and the febrile symptoms increase, so as to induce an apprehension that the brain will be affected, it will be advisable to promote and reproduce the swelling by warm fomentations and stimulating liniments; and to obviate the fatal consequences that might ensue from its suddenly receding, by means of composition and small repeated doses of lobelia. When the testicles become affected and are much swelled, every endeavor should be exerted to prevent suppuration, and we are, therefore, to have recourse to full and repeated courses of medicine. A suspensory bag and discutient local application should be applied. Much the same means should be adopted when in a retrocession of the tumor in the neck, the female breast becomes indurated and swelled.

If the tumor be very large, let the patient be freely purged, and the glands well bathed with our Stimulating Liniment.—If there should be any tendency to phrenitis, the feet must be bathed in hot water, and the most active means used to equalize the circulation. We sometimes have Parotitis as the result of salivation in the Allopathic treatment of disease; but as Reform Physicians never use mercury in any of its forms, we can never expect it as a result of our treatment. If, however, we are called to relieve some unfortunate patient who has been so badly treated, we must at once rid the system of the mercury, as we have recommended, for removing other morbific and poisonous agents.

A poultice made of white beans has been recommended in domestic practice, and with great success, where there is a metastasis to the testes, or the following poultice will be a good application, viz:

Cracker, White Pond Lily, Ginger, Green Lobelia Herb, each one part, and two parts of Slippery Elm, all finely pulverized, and mixed with warm water.

In case of a recession (by which this complaint is thrown to the testicle or other parts) an emetic may be taken, and free perspiration must be promoted, by giving one tea-spoonful of the third preparation every hour, diluted with tea and sweetened.—Should suppuration take place, a poultice must be applied, made by adding Indian meal to beer until it is formed into the consistence of a poultice. The above treatment has invariably been found successful.

APHTHÆ—SORE MOUTH OF INFANTS.

Description and Causes.—This is the most common kind of sore mouth in children; and it is that which is a frequent accompaniment of diseases of the gastro-intestinal mucous surface in subjects of all ages, as of gastritis, gastro-enteritis, cholera infantum and dysentery; also of typhus fever, and diseases of the lungs, and particularly of pulmonary phthisis in its third stage.

Three varieties of aphthous stomatis are described, viz. 1, papular; 2, vesicular; 3, pustular. These are often met with, constituting successive stages rather than separate varieties of the disease. Whatever may be the form under which it exhibits itself, it more especially attacks the parts in which the epithelium is the most apparent. It usually appears first in the angles of the lips, and then on the tongue and the lining membrane of the lips and cheeks, and on the *velum palati* in the form of little papular, vesicular, or pustular white specks, which some writers have denominated ulcers; but this term is not applicable until the specks burst—a termination which usually occurs between the second and third days.

The causes of follicular or aphthous stomatitis are predisposing and exciting; and of these the first is the most important and the least controllable, because consisting in an excess of the white tissues, or a predominance of the lymphatic temperament. This may be greatly increased by bad or defective food and impure air, under the influence of slight causes, such as indigestion, common bowel complaint, or changes in the milk or other food. As evincive of predisposition in certain subjects over others, the practitioner must doubtless be able, from his own observation, to confirm the remarks of Underwood, that "the thrush is sometimes found to seize every infant in certain families, in whatever way the children may be managed." Illustrating the effect of dietetic regimen, is

the additional observation of this experienced physician, though inelegant writer, that want of a proper attention to the state of the alimentary canal will bring on the disease, as "where the mother happening to be ill, the whole attention of the family has been thereby engaged; or where one infant has been put to nurse, while all the rest of the children have been carefully brought up at home."

Aphthous stomatitis is mainly induced and kept up by disordered digestion and impeded nutrition; and hence its common occurrence in those children who are brought up by the hand, and especially in those who, in addition to the loss of their mother's or nurse's milk, are cooped up together in hospitals, and deprived of fresh air, and of the means for preserving a clean state of the skin. The fact is, the thrush is a disease of debility, and therefore attacks very young and very old subjects, especially if otherwise weakened. Whoever has watched the progress of protracted cases of cholera infantum, and seen the spread and severity of aphthæ, increasing as the disease advances, and the little patient becomes weaker and more emaciated, will confirm the accuracy of this remark. MM. Trousseau and Delpech have pointed out a community, to a certain extent, of the causes of aphthæ in infants and of puerperal fever in their mothers.

The early period of infancy, with imperfect nutrition, and the atmospheric deterioration occasioned by crowding a number of children together within a restricted space, must be ranked among the predispositions. There is evidently, too, in young infants, a greater predisposition in the mucous membranes, when inflamed, to be covered with diphtheritic exudations or concretions. By many, it has been supposed to be propagable by contagion from the nipple; but others are not of this opinion. Children have often been seen to drink from the cup used by others affected with the disease, without receiving it themselves.

The disease of the mouth occurring in infants during the period of suckling, in which the tongue, and the inner surface of the lips and cheeks are covered, to a greater or less extent, with minute portions of a white matter resembling curd—and which constitutes the *muguet* of the French writers, the *thrush*, or *children's sore mouth of nurses*, and the *aphthæ lactumina* and *aphthæ infantiles* of the older physicians, is evidently a very distinct affection from the *aphtha* which occurs in the adult as well as in the infant. The first depends upon an erythematic inflammation of the mucous membrane of the mouth, in which an altered secretion, in the

form of small and curd-like particles or flocculi, or, as in other diphtheritic inflammations, of large patches of a soft pseudo-membranous matter, takes place upon the surface of the inflamed membrane. Upon the separation of these morbid exudations, the membrane beneath is found to be smooth, and without any solution of continuity. According to Guersent, the curd-like exudation is deposited beneath the epithelium, and its separation is consequent upon the rupture of the latter; Plumbe is of a similar opinion.

Diagnosis.—In the commencement of the disease the mucous membrane of the mouth becomes increased in redness, and upon the inner surface of the lips and cheeks, on the sides and inferior surface of the tongue, and, occasionally, over the greater part of the soft palate, there soon appear a number of distinct white specks, which, upon examination, are found to be small transparent vesicles, of a grayish or whitish color, each being surrounded at its base by a raised, hard ring of a red color more or less decided.—These vesicles often occur in groups, or they may cover the whole of the lining membrane of the mouth and fauces; extending, in some cases, into the œsophagus, and throughout the alimentary canal; while in other cases they extend into the pharynx, and, according to some writers, into the larynx and even the trachea. The follicular inflammation will often continue for some time, as just described, without making any further progress, and it may often be arrested before ulceration ensues. Unusually, however, the vesicles enlarge in size, rupture, and give discharges to a whitish matter; a superficial ulcer now occurs, with slightly elevated edges, and surrounded by a circle of inflammation. These ulcers often secrete a white, curdy matter, which adheres, at first, to their surface, but becomes subsequently detached, and is either swallowed or ejected with the saliva. It is often succeeded by a new exudation of a similar matter, and thus, in protracted cases, the crusts of curdy matter are repeatedly detached and renewed; or only a portion of the crusts is detached, while the general layer of curdy matter remains adherent, often for weeks. When the aphthous ulcerations are numerous, and in close contact, this curd-like exudation may spread from one to the other, and form a layer, often of considerable thickness and extent. Occasionally, the exudation from the ulcers is mixed with a small portion of blood; it then forms dark colored crusts, which have, not unfrequently, been mistaken for gangrenous sloughs.

The thrush is easily recognized. The whole of the surface of

the tongue exhibits unusual redness, and here and there small curd-like exudations are perceptible, especially behind the lips and about the tip of the tongue; these gradually increase in number, and coalesce so as to form irregular patches, which are thrown off and renewed, leaving the mucous membrane, from which they are detached, of a vivid red color. In slight cases, the exudations are discrete; but in the more severe, they always run together, until occasionally the whole of the mucous membrane of the mouth, as well as of the pharynx, and perhaps œsophagus, is implicated. The skin is commonly hot and dry, and the thirst considerable.

The disease is usually of but little consequence, and terminates in a few days in health; but in the foundling hospitals, where numbers of children are crowded together in a small space, and where appropriate ventillation and nourishment cannot readily be obtained, it is a serious malady, the inflammation extending down the digestive tube, and in this way proving at times fatal.

It consists in the formation of vesicles within the mouth and lips, and all the way along the cheeks, the tongue, and the velum pendulum palati; and even on the mucous membrane of the hard palate, the tonsils, and pharynx. On opening the mouth, it presents an appearance just as if the patient had been taking milk, curds and whey, or some chalk mixture; all the vesicles are exceedingly white. This is produced by innumerable elevations of the cuticle, by a fluid, and a large number of minute vesicles.—There is sometimes a good deal of inflammation with it; and sometimes there is scarcely any thing more than this white appearance—as if the parts were filled with curd.

Reference has been before made to some of the symptoms accompanying aphthæ. The most marked ones are produced by a morbid state of digestion, such as eructations of an acid smell, sometimes vomiting and irregular action of the bowels; heat of skin and fever; but you have been already told that this last is by no means a common complication of simple or discrete aphthæ.—On this point, however, we must remember that the excitement of the heart and blood vessel system is relatively low in subjects of a lymphatic temperament, and hence we are not to lay stress on this as the only measure of inflammation or febrile action in them. If we were to judge from the cries, wakefulness, and restlessness of children affected with aphthæ, we should infer that they experience pain. When the disease extends to the pharynx and produces a swelling of the glands and inflammation of the trachea,

which is among its alleged effects, the cry of the child is sensibly altered, and it manifests pain, but more by a harsh or hissing cry than by its tears.

Treatment.—We can find no better remedy for this disease than the Neutralizing Mixture, namely: Equal parts of Rheubarb, Soda and Peppermint, followed by some mild astringent, like the (Blackberry,) Rubus villosus, or Geranium mac, (Cranesbill:) the fine powdered root of the latter mixed with honey will be found very good. As this disease is often attendant on teething children, the bowels must not be checked too suddenly, by astringents, hence the Neutralizing Mixture above mentioned will be found necessary during all the period of the disease.

A decoction of the Coptis trifolia, (Gold thread) will be excellent as a mouth wash. There is in most cases an acidity of stomach present, hence some antacids are to be combined with the astringents, such as magnesia. The xanthoriza apiifolia, (Parsley Yellow Root,) will be found very valuable in this disease. Mucilages, such as Gum-water and Slip. Elm, will be very soothing and greatful to the thirsty infants.

In the first place rub off these white patches with a dry rag; then wet a finger, and cover it with fine bayberry powder, and rub over the tongue and sides of the mouth. Then lay on the tongue some finely powdered chalk, mixed with an equal quantity of loaf sugar. These applications will generally cure it after a few repetitions. Rubbing the dry powder over the surface stimulates the mucous glands, and induces a more healthy condition of the secretions.

In mild cases, it is seldom necessary, more than to allow the child to swallow the chalk and sugar laid on the tongue.

In more obstinate cases, give the child, two or three times a day, a table spoonful or more of the strong decoction of bayberry or sumac, with the addition of half a teaspoonful of powdered chalk, sweetened. If there be symptoms of the disease having spread throughout the stomach and bowels, besides the above mixture, give three or four times a day, half a teaspoonful of composition powder, in a tablespoonful of bayberry tea; and use injections to regulate the bowls. If this is not sufficient, apply the vapor bath to warm the blood, and give an emetic to cleanse the stomach.

CYNANCHE TONSILLARIS—QUINSEY, TONSILLITIS.

This common and troublesome disorder occurs with very une-

qual severity in different cases. The differences depend upon the extent of the disease, and upon the number and variety of the parts which it involves; for it is seldom limited entirely to the tonsils, but spreads to the uvula, the salivary glands, the pharynx, and even to the root of the tongue, and the neighboring areolar tissue. When the inflammation is superficial it does not produce any great distress, even though it may be diffused. When it penetrates through and beyond the mucous membrane, it is apt to end in suppuration, and to harrass the patient much: the tonsils swell to an enormous size, and at length deep abscesses form in them. The disease is worst of all when the back part of the tongue, and the muscular and areolar tissue thereabouts, become implicated: it may chance to reach even the larynx, and then it is always and extremely perilous.

The *predisposing* causes of the disease are, in the first place, a peculiar constitution, and disposition to it. There are some people, who, in whatever way they may be exposed to the general causes of inflammation, continually get a sore throat. Whenever they are exposed to the vicissitudes of temperature, coldness, and moisture, they are sure to have inflammation of the throat; and this will run in families—so as to be constitutional. It certainly is predisposed to by mercury. When persons have been much under the influence of mercury, they are very liable to take cold from the vicissitudes of temperature; and the throat is certainly particularly liable to inflammation from this cause. The youthful period of life appears more liable to tonsillitis than old age: for we see far more cases of inflammatory sore throat in the young, than in the old. Perhaps, among the predisposing causes, we might mention the season of the year—Spring. Cases of this description certainly occur (from cold and wet) more frequently in the Spring, than at any other period.

The *exciting* causes of this disease are, especially, cold and wet; whether applied to the body at large, or to the feet only. Cold applied in any way, is sufficient to produce this disease.

The causes which usually give rise to it are, exposure to cold, either from sudden vicissitudes of weather, from being placed in a partial current of air, wearing damp linen, sitting in wet rooms, or getting wet in the feet, or coming out of a heated and crowded room suddenly into the open and cool air; all of which may give a sudden check to perspiration. It may also be occasioned by violent exertions of the voice, blowing wind instruments, acrid substances irritating the fauces, and by the suppression of accus-

tomed evacuations. It principally attacks the youthful, and those of a full and plethoric habit; and is chiefly confined to cold climates, occurring usually in the Spring and Autumn; whereas the cynanche maligna chiefly attacks those of a weak, irritable habit, and is most prevalent in warm climates. The former differs from the latter likewise in not being contagious. In many people there seems to be a particular tendency to this disease, as from every considerable application of cold it is readily induced.

The duration of tonsillitis is from six to eight days; its termination is for the most part by resolution; but it is far from uncommon for it to be in suppuration. We infer that this latter has taken place, when, without diminution of the swelling, the pain is considerably abated, and yet the difficulty of swallowing and of respiration is as great as ever. Inspection at this time shows that the abscess is pointing, or by its ready yielding to pressure manifests fluctuation. The bursting of the abscess is sometimes brought about by efforts of retching, or in coughing, and sometimes it takes place when the patient is asleep. The pus is generally of a fetid odour, and at times fetor is the announcement of the bursting of the abscess. It is not often that both tonsils suppurate. There are instances of the opening for the discharge of the matter being external in place of into the throat.

Diagnosis.—An inflammatory sore throat discovers itself by a difficulty of swallowing and breathing, accompanied by a redness and tumor in one or both tonsils, dryness of the throat, foulness of the tongue, lancinating pains in the parts affected, hoarseness of the voice, a frequent but difficult excretion of mucus, and some small degree of fever. As the disease advances, the difficulty of swallowing and breathing becomes greater, the speech is very indistinct, the dryness of the throat and the thirst increase, the tongue swells and is encrusted with a dark fur, and the pulse is full, hard and frequent, beating from one hundred to one hundred and forty in a minute. In a few cases, small white sloughy spots are to be observed upon the tonsils, and in very violent ones there is complete deafness. When the symptoms of cynanche are considerable, the whole face partakes of it, the eyes are inflamed, and the cheeks florid and swelled, respiration is performed with difficulty, and the patient is obliged to be supported in nearly an erect posture to prevent suffocation. Even delirium and coma sometimes supervene. If the inflammation proceeds to such a height as to put a total stop to respiration, the face will become livid, the pulse will sink, and the patient quickly be destroyed.

The chief danger arising from this species of quinsey is, the inflammation occupying both tonsils, and proceeding to such a degree as to prevent a sufficient quantity of nourishment for the support of nature being taken, or its wholly impeding respiration: but this seldom happens, and its usual termination is either in resolution or suppuration. When proper steps are adopted early, it will in general readily go off by the former. Cynanche tonsillaris rarely terminates either in gangrene or scirrhus.

Little fever, free respiration, deglutition not much impeded, the inflammation being of a vivid red color, universal but gentle diaphoresis, and a copious ptyalism or moderate diarrhœa coming on about the fifth day, are to be regarded as symptoms which denote a termination of the disease in resolution.

When suppuration is likely to ensue, the parts affected become more pale and less painful, a sense of pulsation is felt in them, and there are slight rigors. The suppuration sometimes takes place at the lower part of the tonsils, and then the matter is discharged into the œsophagus, and passes into the stomach, and it is only known to have happened by the immediate relief which the patient experiences. Sometimes, however, it is brought up, and discharged by the mouth, being of a very clotted appearance, often mixed with blood, of a nauseating, bitter taste, and fetid smell. The relief experienced by the discharge is often very remarkable from its suddenness; for the person who a few minutes before was not able to swallow the smallest quantity of anything; and who breathed with great difficulty, now feels perfect ease, and is able to eat and drink heartily. Sometimes, however, the disease does not terminate by a proper suppuration, but in several small abscesses, which produce trifling superficial ulcers, being of a white or gray color, similar to apthæ; whereas those in cynanche maligna are of a dark-brown, or black color. If gangrene is to take place, the parts affected lose their red and shining color, and from being tense and tumid, they become flaccid, brown and livid; the pulse from being strong, becomes small, weak and irregular; the face assumes a cadaverous appearance; cold clammy sweats break out; the extremities are cold; coma, and symptoms of debility make their appearance, and destroy the patient.

Where cynanche tonsillaris has proved fatal by suffocation, little more than a highly inflamed state of the parts affected, with some morbid phenomena in the head, have been observed on dissection.

Treatment.—In the uncomplicated and milder form of the disease, when the inflammation is superficial and the fever slight, no

great activity of *treatment* is requisite. The patient should be kept within doors, and even in bed; for a troublesome tendency to a recurrence of the disorder may be fostered by neglect or imprudence. A strip of flannel may be put around the neck, and some stimulating embrocation applied to the exterior of the throat, beneath the ramus of the jaw: the stimulating liniment is well adapted to this purpose. Some such plan as this will generally suffice, not indeed to stop the inflammation of a sudden, nor to put an end at once to the fever, but to cause the complaint to run its course evenly, and to go on to resolution in a few days. Commonly it is not completely over until both the tonsils have been attacked in succession.

When you catch the disorder in its very outset, you may sometimes succeed in cutting it short by an emetic. In all cases it is right to administer a brisk purgative.

Dyspnœa may be produced by the mere swelling of the inflamed part; and when it concurs with much enlargement of the tonsils you had better pierce them with the lancet. If they contain matter, it will be evacuated. There is an instrument made on purpose for this small operation, consisting of a lancet enclosed in a flat silver sheath, from the end of which it is made to protrude to a certain extent only, by pressing on a spring. The instrument should be directed towards the centre of the fauces, and not outwards, in order to avoid wounding important vessels or nerves.

There is, however, very little danger in puncturing the tonsils, and it may be done with great relief when we find that matter has formed, and the remedies above directed have not afforded relief.

A gargle of warm milk will often assist the suppurative process when we find that resolution will not take place.

After the stomach has been cleansed by an emetic, one of the best remedies that can be given is powered gum guaiacum. It may be administered in teaspoonful doses, mixed in a mucilage of slippery elm, and repeated twice a day.

A strong tea of bayberry or sumac, with a portion of cayenne pepper, given occasionally, and more especially when the coating on the tongue begins to soften, is peculiarly serviceable to cleanse the stomach.

The feet should be kept warm, and occasionally placed in warm water, or, what is still better, a vapor bath administered.

Gargling very cold water, or vinegar and water, in the throat, appears to be particularly serviceable in this affection. If the cold gargle should not feel pleasant to the throat, it should not be

used. Gargles of pepper sauce, and of bayberry and pepper, may also be employed with a view to excite the secretions and clear the throat of mucus. The tincture of lobelia may be usefully employed as a gargle.

ACUTE LARYNGITIS—INFLAMMATION OF THE LARYNX.

Description and Causes.—What is laryngitis? It consists, as that term implies, in inflammation of the parts composing the larynx; and especially of the mucous membrane that covers the laryngeal cartilages, including the epiglottis. The inflammation may be, and sometimes is, exactly limited to the larynx; but frequently it extends also to the posterior fauces, the velum palati, and the tonsils.

The disease begins from a catarrh. The person has a common cold; and the latter generally arises from cold and wet. The application of cold alone will produce the disease; but it usually results from a union of the two, applied either to the throat or to the feet. A few days after exposure, the patient has great hoarseness; and then pain in the larynx comes on. Sometimes it does not arise from a common cold; but, a brisk inflammation of the tonsils takes place, and it spreads from them. Occasionally too, it takes place suddenly; there is no part of the body which can be inflamed *chronically*, that may not become the seat of *acute* inflammation; and therefore this occurrence may take place in the throat. When there is a syphilitic sore-throat, or a chronic affection of any kind, patients may suddenly experience great difficulty of breathing, and be in the greatest danger from active, acute laryngitis.

Acute inflammation of the larynx has been brought on by swallowing scalding or corrosive liquids. By the convulsive action which these excite in the throat, they are in part thrown on, and even into the glottis. Children accustomed to drink from the mouth of a tea-kettle or tea-pot, have often attempted to do this when these vessels contained scalding water; the result has been violent inflammation of both pharynx and larynx. Instances of this accident were first recorded by Dr. Marshall Hall. Mr. Porter observes, that when a person attempts to drink (by mistake) a corrosive liquid, a similar convulsive action takes place—closing the pharynx, and throwing the offending matter violently

backwards through the mouth and nostrils, under the epiglottis; and thus this accident becomes a cause of acute inflammation of the larynx. Mr. Ryland has, with good reason, placed the inhalation of flame, or of very hot air, among the causes of acute inflammatory injuries of the larynx. Persons who die from severe burns, if it be only about the head and face, generally suffer from severe dyspnœa; and the mouth and larynx are found in a highly inflamed and congested state; these effects he very rationally ascribes to the great heat of the air inhaled at the moment of the conflagration. The inhalation of very acrid vapors, might possibly have the same effect. As exciting causes of asthenic laryngitis, erysipelas, scarlatina, small-pox, and measles, may be mentioned; and we may add, that inflammation of the tongue from the excessive use of mercury, and diffusive cellular inflammation from punctured wounds, have been known to extend to the cellular tissue of the larynx, and cause death. M. Bayle and Dr. Tweedie have noticed, that œdematous laryngitis sometimes suddenly supervenes, without any obvious cause, during and after typhoid fevers. It occurs, also, not unfrequently, in the course of chronic disease of the larynx, and is sometimes the cause of death in these cases.

Habitual intemperance, long courses of mercury, and frequent and long-continued exertions of the voice, are supposed to predispose persons to attacks of laryngitis. Except in cases of scarlatina, measles and small-pox, and of the accidents before alluded to, laryngitis never attacks children; and, of those advanced in life, Dr. Cheyne states that it most frequently occurs in such as are liable to indigestion connected with a disordered state of the liver. In most instances, the subjects of it had previously been liable to sore-throat.

Diagnosis.—In this affection, there is hoarseness or whispering; and, indeed, almost suppression of the voice. The breathing also is hoarse, loud and rough. The inspirations are long. There is great dyspnœa; and besides the constant difficulty of breathing, there are occasional paroxysms of dyspnœa, in which every muscle of the body comes into play; the eyes start; and the person looks as if he were being hanged. Such is the state of the parts, that there is also frequent orthopnœa (from ὀρθός, *erect;* and πνοη, *breathing*;) that is to say, the person cannot breathe unless he be erect. From the great difficulty of breathing, the face is pale and ghastly; the lips are pale and livid; and perhaps the face and throat are swollen. There is pain felt in the throat, exactly in

the situation of the larynx; and on pressing the larynx, we are sure to find it tender. Sometimes, but not always, there is redness and swelling of the face.

Sometimes there is a swelling and redness of the fauces, of the "velum pendulum palati," and uvula; and, indeed of the tongue. Occasionally, "cynanche tonsallaris" co-exists with laryngitis.—Indeed, it *frequently* does so—the inflammation commencing in the tonsils, and spreading into the larnyx. The epiglottis is very often swollen. The epiglottis is a part of the larynx—so much a part that in many anatomical books, it is enumerated with the cartilages of the larynx. Sometimes there is cough—but not always. Sometimes, too, there is a difficulty in swallowing. In the function of deglutition, the larynx is raised and brought forward; and if a part of the larynx so much pressed upon be inflamed, of course there is a difficulty of deglutition—*dysphagia*, as it is called. There is also expectoration of viscid mucus; for the inflammation being seated in a mucous membrane, (will of course) affect the secretion of the membrane. The tongue, likewise, is very foul—from the inflammation taking place in its neighborhood. These are the *local* signs; and they are those of inflammation—redness, swelling, heat and pain.

From the disturbed function, there are also *general* symptoms There are thirst, heat, extreme restlessness, and great anxiety.—The difficulty of breathing must occasion great restlessness, and extreme anxiety. The pulse is rapid; and there is at last a clammy sweat. The pupils, too, at last become dilated; and the patient keeps his mouth constantly open. The difficulty of breathing occasions such an accumulation of blood in the head, that more or less compression exists; and the pupils constantly become dilated; and the patient, from the want of breath, opens his mouth, gasps and makes an effort to take in all the air he can.

This disease, when acute, lasts only about three or four days—not including the previous days, on which there may be "cynache tonsillaris;" but reckoning from the time when the larynx becomes actively inflamed. Death sometimes occurs very suddenly. A violent spasm takes place; and the patient is quickly destroyed.

This is frequently the case in the old practice, as has been most lamentably illustrated by the death of Washington, Byron and others, who have suddenly fallen victims, not so much to the disease, as to the barbarous medical practice to which they were subjected. In our practice however, it is really a mild disease, and very seldom fatal.

The pathology of this disease is extremely simple. The membrane covering the interior surface of the instrument of the voice suffers inflammation. One effect of inflammation in mucous membranes is a thickening of those membranes; they become turgid and swollen. Another frequent effect is the effusion of serous fluid in the subjacent areolar tissue. By such tumid thickening of its lining membrane, the chink called the *rima gottidis* is narrowed: it is still further diminished in breadth whenever the membrane is lifted and protruded by infiltration of the tissue beneath it; it is so nearly closed up, that air cannot pass inwards in sufficient quantity to sustain the vital functions; a small portion only of the blood returned to the lungs from the right side of the heart undergoes the requisite change from venous to arterial.

It is of the utmost consequence to make an accurate diagnosis. Laryngitis is easily distinguished from cynanche tonsillaris by the extreme and peculiar dyspnœa which attends it. There may be difficulty of breathing in the latter disease, from enormous swelling of the tonsils; but then such swelling will mostly be *visible*. In laryngitis the marks of inflammation to be *seen* on inspection of the fauces are generally slight and trifling, and quite inadequate to explain the difficulty of the swallowing. Do not, however, forget that laryngitis may *supervene* upon cynanche tonsillaris.—Again, cynanche laryngea is readily discriminated from cynanche pharyngea; in which complaint there is great pain and difficulty in deglutition: but the breathing is quite free. In cynanche trachealis, or croup, which we shall next describe, breathing *is* affected, and the swallowing *is not*.

Treatment.—To control and manage this form of disease with success, a timely and active employment of suitable remedies is obviously necessary; and they, too, must be directed to the cause of the disease as quickly as possible. In the first stage of this disease, nine cases out of ten may be cured by the administration of a lobelia emetic. But after it has run on for some two or three days, a course of medicine will be actually necessary, and in some instances it will be proper to repeat the course some two or three times.

Emetics are indispensably necessary in this form of disease, for they not only remove from the stomach the morbific material which it contains, but by their action upon the exhalent vessels of the lungs, they promote expectoration, and, thereby, lessen the inflammation of the mucous membrane, as well as open the pores of the skin. In addition to these means the frequent use of cayenne

gargles will afford great relief. If the disease appears obstinate, and increases in violence, laryngotomy affords the only chance of escape from suffocation.

In mild cases of sore throat, a strong tea of witch-hazel leaves and golden seal, with the fourth of a teaspoonful of cayenne in each dose, occasionally repeated, will generally remove it. In worse cases the throat should be gargled with the same article; at the same time keeping the neck warm by the application of a flannel cloth, or woolen cravat. The front part of the neck or throat may also be bathed with pepper and vinegar or the bathing drops; and the patient should inhale the vapor of vinegar and water, which may be applied by an inhaler, or by putting the vinegar and water hot into a coffee pot, and then dropping a small red hot stone into it, closing the lid, and holding the spout near the face of the patient, who should inhale the steam as hot as he can bear it. This process ought to be often performed, particularly where there is much pain and difficulty of breathing.

The placing of a small quantity of cayenne pepper, in powder, on the back part of the tongue, as near as may be to the part affected, the patient endeavoring so to breathe as not to take any of the pepper into his lungs, has produced the most decided an happy effects. The operation should be repeated at suitable intervals, until the inflammation is removed.

In addition to what has been recommended, a poultice of slippery elm and cracker, made very stimulating by the plentiful addition of ginger and cayenne, and applied to the throat, will always be found very serviceable; and in extreme cases, a gargle of the tincture of lobelia, with capsicum, has been used. And if swallowing be so interrupted that sufficient nourishment cannot be taken, the patient must be supported by injections of rich broths, soups or porridge.

Raspberry or Barberry jelly dissolved in water makes a refreshing and cleansing drink in this disease and is particularly useful during convalescence.

If the above means should fail and you have good evidence that a mechanical obstruction to the passage of the air exists in the larynx, and that the tubes *beyond the larynx* are pervious and free; there are two things which we would urge upon you. First, we would most earnestly advise you not *to wait too long* before you propose or perform tracheotomy; and secondly, never to omit performing it *merely* because it may appear to be then too *late*. If, in the acute and limited disease, an artificial opening be made

while the patient's strength is yet entire, and before his whole system is poisoned with venous blood, or his lungs are overwhelmed with sanguine congestion and serous effusion, it will almost infallibly save his life. But if the sinking of the vital power has got beyond a certain point, tracheotomy will not, in that case, rescue him. It is bad and foolish practice to wait, and try other methods, and postpone the operation as *a last resource*, when the circulation is evidently loaded with unarterialized blood.

We feel fully assured however, that tracheotomy will seldom or never be required, but there may some cases fall into our hands after the Old Practice have exhausted their skill, where it may be necessary to perform this operation to keep the patient alive till we can use our remedies. If the Reform Practice can treat cases from their commencement, we shall seldom have occasion to perform tracheotomy.

CHRONIC LARYNGITIS—CHRONIC INFLAMMATION OF THE LARYNX.

Description and Causes.—In addition to its technical designation of Chronic Laryngitis; Laryngeal Phthisis; Laryngitis with Secretion of Pus; it has received the popular ones of *Clergyman's Sore Throat; Throat Consumption*, etc.

Chronic laryngitis may be the consequence of primary acute laryngitis and idiopathic; or it will show itself after a very brief, and by no means violent stage of acute phlogosis of the organ, and be combined with, and a symptom of chronic affections of other parts, particularly of pulmonary tubercles, and occasionally of secondary syphilis. The symptomatic is by far the most frequent variety.

The propriety of the term *laryngeal phthisis* is supposed to rest on the occurrence of the symptoms of consumption and its fatal termination, in consequence of organic changes which take place in the larynx. That such cases have been met with is not denied; but the number is very small. In a great majority of those persons who have sunk under disease whilst attacked with chronic laryngitis, there have been found to coexist tubercles of the lungs. Sometimes these last follow, but more frequently precede the laryngeal affection. The upper portion of the air passages chiefly suffers from ulceration in phthisis. Of one hundred and

two consumptive patients noted by Louis, the trachea was found to be ulcerated in thirty-one, the larynx in twenty-two, and the epiglottis in eighteen. In the whole of his researches up to the time of making this record, he met with only seven cases of ulceration of the bronchiæ. Hastings gives, it is true, a larger proportion; the mucous membrane of this part having been, according to him, ulcerated in all those (leather-dressers of Worcester) who died of chronic bronchitis. Andral tells us that of the whole number of cases of phthisis which have come under his observation, in three-fourths of them there were ulcerations of the mucous membrane of the larynx. It will be the more correct to regard these ulcerations as symptomatic of tuberculous disease.

Even though chronic laryngitis without complication should seldom be productive of consumption, the designation *phthisis laryngea* will still be applicable to those cases of tubercular pulmonary consumption in which the disease is aggravated, the symptoms in a degree characterized, and its march accelerated by the laryngeal affection.

The *causes* of chronic laryngitis are not always appreciable.—Sometimes the disease originates under the influence of atmospherical changes. In such cases we find persons contract a slightly acute laryngitis, which soon passes into a chronic state and never leaves them. The inspiration of irritating particles or gases which escape in various manufacturing processes; a prolonged mercurial course; typhoid fevers, and debilitating causes in general; exanthema; foreign bodies in the larynx, occasionally give rise to it.—Of the internal causes, unmeasured and protracted exercise of the voice is one of the most frequent and evident; as we see in the cases of preachers, pleaders at the bar, and other public speakers, and in actors and singers. But even here, obvious as is the exciting cause, we find often so little proportion between its action and the occurrence of the disease, that we must look to other collateral causes, and perhaps still more to the predisposition of the parties affected, as in a tuberculous and scrofulous constitution.—We are, as yet, wanting in the requisite statistical data for a proper knowledge of the proportions of the members of different professions and callings affected with the disease. So far as medical observation and popular belief guide us in forming an opinion, clergymen are most liable to it.

Belonging to predisposition and general debility from deficient exercise, are depraved digestion and nutrition, excess in venereal indulgences, including masturbation and the depressing passions.

The local predisposition may be found in a want of moderate exercise of the voice in the intervals between the formal and professional exercise and extraordinary strain on it; also, in continued irritation of dry hot air by a person habitually breathing such.—Tobacco is a predisposing cause, both of general and local debility; and a disturber of the functions of the lungs, stomach, larynx, and pharynx, by its perverting the secretions of the mucous membrane lining these organs, and by at first exciting and afterwards depressing their nervous power. Whatever tends to attract fluids in excess to the larynx, and to derange the circulation in its mucous membrane, as well as indirectly to weaken its muscles, which are those of the voice, by enfeebling innervation, must of course contribute to a morbid state of the organ. The use of tobacco may bring on all these derangements of function. But one would suppose, from the obstinate perseverance in this filthy and eminently anti-social practice, that it placed the chance all on the side of health, rather than of that of disease and of a complication of unpleasant sensations more annoying to the sufferer than positive pain. The apparent exemption from deleterious effects in a few persons of a robust and phlegmatic habit of body, is no argument against the general rule. The same deceptive reasoning has been attempted to show the innocuousness of free spirituous and vinous potations in general. But how small the number of exempts out of the legions of those whose health and comfort and respectability have been ruined, and their lives abbreviated by such practices. Well have these privileged exempts been called the Devil's decoys—seducers of the thoughtless crowd to their undoing. The use of ardent spirits is, particularly, in conjunction with exposure to vicissitudes of weather, a powerful cause of this disease.

There is a sort of bastard croup, with which it is quite necessary that you should be acquainted, for it is not at all uncommon. It has received a variety of names, which shows that it has been recognized, as a distinct malady, by various observers. Yet no doubt can be entertained that it has very often indeed been confounded—and is still continually confounded—with the true croup, with cynanche trachealis. In their most obvious symptoms the two affections are much alike. The broad and essential distinction between them, is the absence, in the spurious disorder, of inflammation and of fever—and consequently of any concrete or other effusion from the mucous membrane of the air passages.—The child is seized all of a sudden, roused perhaps from its sleep

by a catch, or interruption of its breathing, more or less complete. It strives and struggles to inspire, but is apparently unable to do so; at length the effort is successful, and the breath is drawn in with a shrill whistling or crowing sound, like that which characterizes the inspirations of croup, or of hooping-cough, and depending no doubt, upon the same cause—a narrowing (in this complaint temporary) of the fissure of the glottis. *Spasmodic croup* is the most common of its names. It is the *thymic asthma* of the Germans. Dr. Ley, in a volume upon this curious disorder, published a short time before his death, adopts from Dr. Mason Good the appellation of *laryngismus stridulus*. Dr. Gooch called it *child-crowing*, a homespun term, which we must prefer to the somewhat pedantic and cacophonous title bestowed upon it by Dr. Good. The crowing noise, and its concomitant phenomena, take place in paroxysms, which vary in respect to frequency and severity, and which are separated by intervals of easy and natural breathing.

Thus far, there can be no doubt about the inflammatory nature of croup, whether it be simply laryngeal, laryngeo-tracheal, or laryngeo-bronchial. The difference is simply in the degree and diffusion of inflammation along the mucous membrane of the air-passages, and the treatment in all must be of the same kind. But another variety with more distinctive peculiarities is alleged to be common in children and every now and then to be seen in adults; is is called *laryngismus stridulus* or *spasmodic* croup, and is represented to be dependent on a temporary affection of the nerves, by which the muscles of the larynx are thrown into spasmodic action, and thus diminish so rapidly and greatly this canal as to cause feelings of imminent suffocation, and on occasions death itself. This variety of croup occurs chiefly in weak, irritable children of a nervous temperament, and liable to worms.

Diagnosis.—The commencement of chronic inflammation of the various structures composing the larynx, is often extremely insidious, and its progress so tardy, that much, and often irreparable, mischief is accomplished before any alarm is taken by the patient, and he applies for medical assistance.

Pain is felt in the larynx; but its precise situation may vary; at times, it extends over the larynx; but at others, is restricted to a small space, and generally to the region of the thyroid cartilage. Commonly a kind of tickling sensation exists, which provokes coughing. The pain, too, is exasperated by coughing, speaking and deglutition, especially when ulcerations exist, and

they are situate above the ventricles of the larynx. The breathing of cold air, and pressure upon the larynx likewise augment it. The voice is almost always changed, being hoarse, and, at times, so much enfeebled, as to be inaudible. The aphonia may supervene suddenly or gradually, and ultimately be complete.

Cough is a constant concomitant, and when the mucous membrane is much swollen, it becomes hoarse and even croupy. In the first instance it is dry, but subsequently it is accompanied with the expectoration of mucus, mixed occasionally with pus or blood. At other times, a membraniform matter is expectorated for months ; and at others, a considerable quantity of false membrane is thrown off, after which the patient rapidly recovers. Occasionally, portions of cartilage are mixed with the mucous or bloody sputa, and, in such cases, there is always accompanying hectic. Chronic laryngitis has, indeed, been divided into two heads—the first comprising that which affects the mucous tissue; and the second, that which implicates the cartilages; the latter—it has been conceived—having perhaps the best claim to the name *phthisis laryngea*, from the incurable nature of the affection, and the hectic and emaciation, which invariably accompany its latter stages.

When chronic laryngitis is slight, and there is not much narrowness, the difficulty of breathing may not be great; but if it be attended with much tumefaction of the lining membrane, the dyspnœa is considerable, and the sound rendered on inspiration sonorous and peculiar. It is evidently, too, augmented by paroxysm. The air of inspiration, likewise gives rise to a snoring or whistling, which may be continuous, or recur in paroxysms.

These local symptoms may be so slight, that the general health does not suffer to any great degree. Commonly, however, more or less sympathetic febrile disorder is apparent, under which nutrition falls off, and atrophy supervenes. The disease now merits the term "Laryngeal Phthisis," which, is however, in the immense majority of cases, connected with the presence of pulmonary tubercles.

The *voice* is almost always altered in its tone, and this change is one of the earliest symptoms of the disease. At first it is merely weak; but more frequently hoarse, and sometimes entirely extinct. The hoarseness may be continual; and at other times it comes on only when the larynx is fatigued, or the patient is exposed to a temperature which differs much from that in which he habitually lives. If the individual suffer from severe hunger, the

hoarseness is much increased, but disappears after a meal. Immediately before menstruation, as well as after venereal indulgences, the hoarseness becomes greater. Dividing the duration of the disease into three periods, it will be found that, during the first, the hoarseness is intermittent, during the second it becomes continued, and may so remain to the end, though more frequently complete aphonia supervenes during the second stage. Inequality of the voice is a common symptom in chronic laryngitis; more, indeed, than is suspected by the patient himself. When the larynx is diseased, the volume of the emitted sound is lessened; and, in general, the emission of air is proportioned to the intensity of the voice. Hence, discordant and unequal intonation is avoided. But the voice becomes discordant and squeaking in those who attempt to give it the full development which it possessed before.—This has been observed in several singers and pleaders, and in clergymen who persist in the performance of their clerical duties when their voice has lost its accustomed pitch.

The *cough* is a constant accompaniment to chronic laryngitis, which cannot always be said of disease of the lower parts of the respiratory apparatus. It is hoarse, and even croupal, when there is tumefaction of the mucous membrane; and generally dry, or at most partially relieved by puriform mucus and sputa mixed with blood. Sometimes pure blood is expectorated; at other times false membrane is expelled once daily for some months, and a more than usually copious discharge has been followed by convalescence and restoration to health. Mixed with purulent or sanguinolent mucus, are occasionally seen the remains of carious cartilages of the larynx. The sputa, especially in the morning on waking, are of a yellowish-white color, and sometimes in small lumps or pellets. In those affected with aphonia or stridulous hoarseness the cough is very peculiar; it has been called eructation by MM. Trousseau and Belloc—the latest and most careful describers of the disease. The frequency of the cough is not, however, a measure of the state of the larynx; nor is it nearly so unfavorable a symptom as hoarseness and the change in the volume of the voice. Some persons in whom there was found great lesion of this part have hardly coughed at all; whilst others have been teased with an incessant cough, in whom both the lungs and the larynx were sound.

The *breathing* is not much affected in the milder forms and early stage of chronic laryngitis; that is, when there is no diminution of the common diameter of the glottis. After the second

stage of the disease is reached, anhelation is marked and goes on increasing until death takes place. This anhelation may proceed from two causes; muscular debility, the result of general weakness, or narrowness of the orifice of the larynx. In the latter case it takes the following course: at first the patient feels liable to what he calls fits of asthma, which most frequently come on at night; at a later period the severity of the paroxysm is increased, and the oppression is permanent. The patient cannot breathe in his bed, unless supported with pillows, and then the inspiration is habitually sibilant, and the expiration loud and prolonged.

The milder and simpler forms of chronic laryngitis, are by no means incurable; in fact, they generally yield to judicious treatment; and were it not for their liability to exacerbations from acute œdematous inflammation, and to complications with pulmonary diseases, they could hardly be called dangerous. Both these destructive complications may be apprehended when the disease has continued long, with increasing severity of symptoms of the voice and respiration, with a change of the cough from dry and ringing to loose and undivided, with increasing purulent expectoration, and particularly if the disease has resisted treatment. If, from the history of the individual, there be any suspicion of a scrofulous tendency, and particularly if symptoms of pulmonary disease—such as slight cough, shortness of breath, pains in the chest or shoulders, quickened pulse, etc.—preceded those of the laryngeal affection, the prognosis is unfavorable; and if there are found any physical signs of phthisis—such as dulness under a clavicle—the case of the patient must be considered almost hopeless. Fœtor of the breath and sputa, implying mortification of the cartilages, is also very unfavorable; but it is more probable that the dead portions of these may be thrown off, than that tuberculous disease of the lung combined with a laryngeal lesion can be cured. In all doubtful cases, particularly those of a syphilitic origin, the state of the general health and strength, as well as the degree of the local affection, must be duly taken into account, in estimating the probable issue of the case.

Treatment.—The treatment we have recommended for acute laryngitis will be found fitted in most cases for this chronic affection. We must enjoin at all stages perfect rest of the vocal organs, an entire abandonment of public speaking, if this is the cause of the affection. Emollient fomentations and poultices with stimulating liniments, will afford relief. When we can trace the

cause to a syphilitic origin, we are to use our best alteratives and such remedies as are recommended for the primary disease.

Professor Greene, of the New York Medical College, within the past few years, has become quite distinguished for his treatment of this form of disease, by means of a probang, moistened with a weak solution of nitrate of silver, introduced into the trachea. This may have been quite successful in many cases, but we are well assured that our vegetable astringents, perseveringly applied, as directed above in the treatment of acute laryngitis, will effect all that can be effected, by the nitrate of silver.

Common inflammation of the larynx, except where it exists as a consequence of consumption, is generally curable by swabbing the throat with the liquid of the third preparation of lobelia, several times a day, and continuing this treatment, together with an occasional course of medicine ; or simply a lobelia emetic, and the use of the compound lobelia pills every night. Much benefit may be derived by sponging the neck and breast every morning with cold salt water ; and, after rubbing the surface dry, apply stimulating liniments, or tincture of capsicum.

In chronic laryngitis, a tincture of lobelia and Sanguinaria, (Bloodroot) given in teaspoonful doses, and the throat often gargled with this, will afford great relief. Where this disease is complicated with dyspepsia, this complication must be attended to, and the bowels regulated by the Spiced Bitters, made laxative by the Leptandria, (Black Root) or some other mild tonic laxative, and the general health attended to.

LARYNGITIS MEMBRANACEA—CROUP.

Acute inflammation, of a very violent description, when it attacks the larger portion of the air-tubes, is situated (for the most part) lower down in children than when it occurs in adults. That intense, violent, adhesive inflammation—inflammation, at least, causing a portion of fibrin to be thrown out—which attacks adults, usually affects the larynx; so that *laryngitis* is the disease of adults; and the disease of children, corresponding with this, is *croup*—" cynanche *trachealis*," more properly " tracheitis." The latter term is the most simple ; and every body knows what is meant by it. The disease has been called "angina trachealis ;" because there is a quantity of lymph formed.

The circumstances under which croup most readily and generally appears, are in reference to *locality, states of atmosphere and age.* As regards locality, we find that large bodies of water, running or stagnant, fresh or salt, predispose to the disease. A damp and cold atmosphere has a similar tendency; although we must consider cold as relative. An easterly wind with rain, and a reduction of the thermometer by a few degrees even in July, will bring on an attack in a child not suitably protected from these influences.

Diagnosis.—The croup may be distinguished from acute asthma by the following diagnostics; in the former, the cough is frequently ringing in our ears; whereas, in the latter there is little or no cough. In croup there is seldom, if ever, any remission, whereas in the acute asthma it is one of the most striking phenomena of the disease, and it is attended with some evacuation, such as belching, vomiting, or purging. In croup, the pulse is strong, with much febrile heat, the urine high colored, and the voice shrill and small; in acute asthma, the pulse, although perhaps equally quick, is less full, the urine is limpid, and the voice croaking and deep.

The inflammation in the croup appears of a very peculiar and singular nature. If it was like that met with in common, we might expect to find the same kind of concretion on the surface of the trachea every day, as its mucous membrane is so frequently the seat of inflammation, attended with an increased secretion.—The matter, however, of which this substance is formed, possesses different properties from those of the mucous which is thrown out upon the membrane of the nose, or of the trachea, in common catarrhal affections. Most practitioners thence have been induced to suppose, that the film which we find in the croup is not formed by a secretion from the mucous glands, but is an exudation from the exhalent arteries, and that it is analogous to the inflammatory exhudation from the inflammation of other internal membranes, first described by the late Dr. Hunter. Upon this principle we can indeed more easily account for such a film not being found in common catarrhal affections, in which the mucous glands are, perhaps, more the seat of the disease. The opinion now universally entertained is, that the new membrane formed in croup is nothing but coagulated lymph.

The croup does not appear to be contagious, but it sometimes prevails epidemically. It seems, however, peculiar to some families; and a child having been once attacked, is very liable to its

returns, at uncertain periods, from any slight exposure to cold; but then its attacks are usually less severe. It is likewise peculiar to children from the age of a year to eight or ten, particularly the ruddy and robust, and has rarely been known to attack a person arrived at the age of puberty.

The application of cold seems to be the general cause which produces this disorder, and therefore it occurs more frequently in the winter and spring, when the weather is stormy and blowing, than in the other seasons. It has been observed to be most prevalent near the sea-coast, where the air is loaded with moisture, and the changes of the weather are sensibly experienced; but it is frequently met with in inland situations, and particularly those which are marshy. It is less known in the temperate than in the northern regions of Europe.

A day or two previous to an attack of the disease, the child appears drowsy, inactive, and fretful; the eyes are somewhat suffused and heavy, and there is a cough, which from the first has a peculiar shrill sound; this, in the course of two days, becomes more violent and troublesome, and likewise more shrill. Every fit of coughing agitates the patient very much; the face is flushed and swelled, the eyes are protuberant, a general tremor takes place, and there is a kind of convulsive endeavor to renew respiration at the close of each fit. As the disease advances, great difficulty of breathing prevails, accompanied with a swelling and inflammation in the tonsils, upper part of the throat and fauces, and the head is thrown back in the agony of attempting to escape suffocation. There is not only an unusual sound produced by the cough, but respiration is performed with a hissing noise, as if the trachea was closed up by some light, spongy substance, and thought by some to resemble the sound of a piston forced up a dry pump, or the crowing of a cock. The cough is generally dry; but if any thing is spit up, it has either a purulent appearance, or seems to consist of films resembling portions of a membrane. Where great nausea and frequent retchings prevail, coagulated matter of the same nature is brought up. With these symptoms there is much thirst, an uneasy sense of heat over the whole body, a continual inclination to change from place to place, great restlessness, and frequency of the pulse. Very often the symptoms suffer considerable and sudden remissions and exacerbations.

In an advanced stage of the disease, respiration becomes more stridulous, and is performed with still greater difficulty and some

degree of spasmodic affection, being repeated at longer periods and with greater exertions, until at last it ceases entirely.

The croup is to be considered as a very dangerous disease, and which sometimes will destroy the child quickly by suffocation, induced either by spasm affecting the glottis, or by a quantity of matter blocking up the bronchiæ; but when it terminates in health, it is by a resolution of the inflammation, by a cessation of the spasms, by relief to the dyspnœa, and the voice becoming natural, with a copious and free expectoration of the matter exuding from the trachea, or of the membrane formed there. The unfavorable symptoms are, considerable difficulty of breathing, great anxiety, violent fever, frequent fits of coughing, no expectoration, the voice becoming more shrill, and the pulse irregular and intermitting.

The disease has, in a few instances, terminated fatally within twenty-four or thirty hours after its attack; but it more usually happens, that where it proves fatal, it runs on to the fourth or fifth day. Where portions of the membranous film, formed on the surface of the trachea, are thrown up, life is sometimes protracted for a day or two longer than would otherwise have happened. More than one half of the cases of croup terminate fatally. The younger the patient, the greater will be the danger.

On opening the bodies of children who have died of the croup, it is not unusual to find the lungs in a healthy state; but in some instances they are inflamed on particular points of their surface, and in others, adhesions to the pleura are discovered; occasionally they are found full of dark-colored blood and scum, and sometimes a quantity of pus is met with. In tracing the bronchiæ throughout their minute ramifications, they are usually found filled with mucus, but which is of a firmer consistence in the trachea, and, as it were, pasted on the surface of the tube, forming a membranous-like concretion, of variable color and texture. The upper part of the trachea is the most usual seat of deviation from the natural structure; but this is sometimes observed also in the lungs, and extending to the smallest ramifications of the bronchiæ.

It has been, and we believe still is, in a great measure, the common opinion, that the inflammatory affection in croup, is chiefly confined to the trachea and bronchiæ; but Dr. Baillie, as well as Dr. Ceyne, has asserted the contrary, and has given a minute account of several dissections of this disease, wherein the lungs were affected with deep-seated inflammation; and it is obvious from the firmness of these organs, from their not collapsing

when the chest was exposed, and from a kind of purulent matter found within their cells.

From the appearances on dissection, and the symptoms which attend the disease, there can be no doubt but that it is an inflammatory affection of the mucous membrane of the trachea, larynx, and other parts immediately connected therewith, attended by a spasmodic contraction of the muscles in consequence thereof; the treatment ought, therefore, to be managed accordingly. Whenever the least change is perceived in the voice of children, although it may be doubtful whether the alteration is or is not the result of a different affection, the most scrupulous attention should be paid to the organs of respiration, that proper means of relief may be adopted without delay. In the first or incipient stage of croup, our best and most strenuous endeavors should be exerted to lessen the increased action which prevails all over the mucous membrane of the trachea, larynx, and bronchiæ.

Cynanche trachealis is frequently preceded by a slight and more diffused affection of the membrane lining the air passages. The child has what is popularly called a cold; sneezes, coughs, and is *hoarse*. Now with respect to this last symptom, Dr. Cheyne makes the following practical remark. Hoarseness (he says) in very young children, does not usually attend common catarrh.—When noticed in a district where croup is not unfrequent, it ought to put the parents or medical attendant of the child on their guard; especially as much depends upon the early treatment of the disorder. With these symptoms the child is feverish and fretful, and does not sleep well. In the course of a day or two the signs peculiar to croup begin to show themselves. Hoarseness; a gruff voice; sometimes the total loss of the power of vocal speech. A very peculiar and distinctive cough to which the epithet "brassy" has been justly applied; the noise resembling that which would be occasioned by coughing through a brazen trumpet. This remarkable sound is always easily recognized when it has once been heard. It is a *ringing* cough; and the expiration has a ringing character; and either of these, the cough or the expiration, is followed by a loud *crowing* inspiration. Then there is the negative symptom; the absence of any difficulty of swallowing; and with all this, inflammatory fever; a flushed face, hot skin, a frequent hard pulse, thirst.

However, it is by taking the symptoms collectively, that we judge of the existence of croup, and by the rapid progress of the disease, rather than by any particular or pathognomic sign. Some

of the symptoms may occur, separately, when there is no croup. The brassy or metallic cough for instance, has been known to accompany some chronic affections of the larynx. Dr. Gregory—the late Edinburgh Professor of Physic—knew a man with a venereal disease of the throat who coughed so exactly the cough of croup, that he was admitted into the clinical wards of the infirmary every session for some years, that the students might have an opportunity of *hearing* this peculiar sound. So also the remarkable crowing inspiration may take place, as we shall soon see, without croup.

In the outset the fever generally runs high; and it is of importance, as respects the diagnosis, to mark the presence or the absence of pyrexia. As the obstruction to the passage of air increases, the blood ceases to be duly arterialized; and then, of course, the skin grows dusky, the pulse feeble and irregular, the extremities cold. The cough, also, as the malady thus goes on from bad to worse, ceases to be loud and clanging, becomes husky, and inaudible at short distance, and the voice sinks into a whisper; the head is thrown back; the nostrils in perpetual motion, dilate widely; the face is pale and livid, and sometimes bloated; the pupils often expand. When these indications of sinking have come on, the case usually terminates ill; the bottoms of the feet turn black and hard; drowsiness supervenes; some tossing of the arms perhaps; the breathing becomes gasping and interrupted, and the child dies after an *in*spiration.

In other cases the croupy symptoms make their attack very suddenly. A child shall go to bed apparently well, and in the course of the night have all the worst signs of the disease. And it is observable, that whether the attack be altogether unexpected or whether it has been preceded by hoarseness, sore-throat, and catarrh, it usually comes on *in the night.*

Thus far there can be no doubt about the inflammatory nature of croup, whether it be simply laryngeal, laryngeo-tracheal, or laryngeo-bronchial. The difference is simply in the degree and diffusion of inflammation along the mucous membrane of the air-passages; and the treatment in all must be of the same kind.—But another variety with more distinctive peculiarities is alleged to be common in children, and every now and then to be seen in adults; it is called *laryngismus stridulus* or *spasmodic* croup, and it is represented to be dependent on a temporary affection of the nerves, by which the muscles of the larynx are thrown into spasmodic action, and thus diminish so rapidly and greatly this

canal as to cause feelings of imminent suffocation, and on occasions death itself. This variety of croup occurs chiefly in weak, irritable children of a nervous temperament, and liable to worms.

Treatment.—Our chief reliance in the treatment of this malady, is to be placed upon lobelia emetics: diaphoretic powders or composition, should at the same time be freely given. After a full emesis has been procured, lobelia, in small doses, sufficient to nauseate, should be administered every two hours, in connection with the composition. This course, by tending to equalize circulation, will very materially lower vascular action upon the tracheal surface, before it has continued long enough to produce any exudation, or effusion of coagulated lymph, or whatever it may be, that constitutes the adventitous membrane. To assist the operation of the emetics, the vapor baths may very advantageously be applied. By promptly resorting to these means, the progress of croup may always be averted; whereas, by suffering it to pursue its onward course during the first two or three days, and trusting to some trifling remedies, the practitioner will be constrained to witness the protracted sufferings, if not the loss of his patient, which promptitude and energy might have prevented.

Such is the celerity of this dangerous disease, we cannot but reiterate the necessity of the most prompt and efficient measures in the outset: and should the disease have progressed beyond its first stages before the patient is seen, and aggravated symptoms are manifest, the strongest preparation of emetic should be freely used; and even by this time the powers of the system may be so, far lessened that ten times the quantity of that preparation will be necessary to produce the desired effect. If there is difficulty in giving the vapor bath, the warm bath may be substituted. Evacuations from the bowels should be encouraged by gentle laxatives.

It is necessary in this disease, that the treatment should be energetic and decisive. The warm bath should in most cases be resorted to, and especially while the little sufferer is under the influence of the lobelia. If the case is of long standing, or of frequent recurrence in the same child, a decoction of Poligala Seneca, (Seneca Snake root,) will be good in connection with the lobelia.

Stimulating liniments applied to the throat with some soft oil, will be found beneficial, and after the application, let warmth and moisture be added, and more or less relief will be obtained.

In the first stages of all cases of croup, a portion of cotton, wet with camphor, whisky, or vinegar, may be applied to the throat. A poultice composed of brown lobelia, pulverized, adding a por-

tion of slippery elm, wet with hot water, and applied to the upper part of the throat, is highly recommended by some practitioners. The poultice must not be allowed to become cold. By having two poultices, and changing them as the one applied becomes cooler, full benefit will be obtained without exposing the throat, except momentarily to the air. It is important to protect the skin of the throat after a poultice has been applied; and, after the removal of the poultice, the skin may be bathed with No. 6, or stimulating ointment.

A Purgative may be given in a short time after the operation of the emetic, which may be repeated every day until the symptoms abate.

Should there be great difficulty of expectoration, the following syrup may be given: Take seneca root (*poligala seneca*) and squills, of each half a pound; water, eight pounds; boil it slowly till the water is half consumed; strain off the liquor, and add strained honey, four pounds; then boil to six pounds, or the consistence of a syrup; to every pound of this syrup add one quarter of a pound of tincture of lobelia. An ordinary sized tea-spoonful may be biven to a child one year old, as often as a paroxysm of coughing occurs, *particularly* if the mucus is discharged with difficulty. This acts as an *expectorant*, *diaphoretic*, and *laxative*.—Bathe the chest and throat with the rheumatic liquid.

If the cough proves very troublesome, give occasionally a tea-spoonful of the syrup of garlic. Should not this preparation diminish it in a reasonable time, administer the *pulmonic syrup*. If there is much febrile excitement, let the surface be occasionally bathed, and *mustard plasters* applied to the feet and between the shoulders, and to the chest alternately. Steep hops and vinegar, inhale the steam, and apply to the throat. It is stated that it has cured when all other remedies have failed.

DISEASES OF THE THORAX.

General Observations.—Before we proceed to the special affections of the Chest, we will make some general observations upon the symptoms of thoracic diseases, and the method of percussion with the technicalities mostly in use.

One of the most constant, and obvious, and distressing, and instructive of these symptoms, is embarrassed or laborious breath-

ing: what is technically called *dyspnœa*. By a healthy adult, under ordinary circumstances, the act of respiration is performed, unconsciously almost, about eighteen times in a minute. There is about one act of respiration for every four beats of the heart. In various diseases this proportion is materially altered. The reciprocal movements, by means of which, in measured succession, air is drawn into and again let out of the lungs, are performed with hurry, or effort, or unusual slowness. Dyspnœa implies some deviation from the natural manner or rate of alternately expanding the thorax, and suffering it to collapse again: of inspiring and expiring: in one word, of breathing. The patient himself, may, or may not, be conscious of this deviation. In most of the cases in which dyspnœa claims to be regarded as a symptom, he *is* conscious of it. Now, upon what does this symptom depend? It may ultimately be referred to an altered proportion between the quantity of atmospheric air that reaches the lungs, and the quantity of blood that is sent into them, from the right side of the heart, to be converted from venous to arterial. That, doubtless, is at the bottom of almost every case of dyspnœa. Respiration is an automatic movement; subject, nevertheless, to the occasional control of the will. The pulmonary branches of the par vagum constitute the principal and constant *excitor*, as the nerves which supply the muscles of respiration are the *motor* links of the nervous chain by which the automatic movements are governed. It is believed that the presence of venous blood in the capillary vessels of the lungs forms the natural stimulous to the pulmonary part of the par vagum. In the ordinary breathing of a healthy person, this stimulous or impression is not felt; perhaps because, being slight and habitual, and exactly apportioned to the need of the individual, it is not attended to: or, it is at once appeased by the admission of air, and the corresponding change in the blood. But when that change is not immediately or perfectly accomplished, then arises the distressful sensation which every body has felt, but which our own language has no one word to express. The French call it the *besoin de respirer*. The English phrase, *want of breath*, denotes the peculiar sensation equally well. It calls into exercise, frequently, the voluntary power of performing the mechanical act of breathing—a power which is superadded to the automatic process.

We have lately been considering certain diseases in which the difficulty and distress of breathing if often extreme. In croup and laryngitis, the only inlet for the air is narrowed at its very

entrance; there is more blood passing through the lungs than can be arterialized under the ordinary motions of respiration: instinctive efforts take place to increase the quantity of air: to make up by more numerous acts of inspiration for the diminished amount of air introduced by each single act. For a time these compensatory efforts may suffice. But if the access of air be still impeded, blood begins to circulate through the arteries but half decarbonized, and to linger and stagnate in the lungs; the lips become livid, and the skin grows dusky. Make, however, a free opening in the pipe that should conduct air to the lungs, and the balance being restored between the blood in those organs and the air that reaches them, the dyspnœa is soon at an end. The quantity of blood being the same *then*, but the air inspired *too little*, there will be dyspnœa. The very same thing occurs whenever a portion of lung, from being spongy, is rapidly rendered solid. No air can then penetrate it nor, *perhaps* any blood; but the same quantity of blood as before arrives at the right side of the heart, and is transmitted thence through the pulmonary artery; and consequently those portions of the lungs which are pervious to blood and air, are supplied with blood in excess, and require air in excess: *i. e*, dyspnœa is necessitated. And you will perceive that similar consequences may arise from any pressure made upon the lung, obliterating in a certain degree its cellular structure: as by fluid collected in the pleura; by enlargement of the heart; by aneurism of the great vessels; by tumors, of whatever kind, within the chest; or by pressure upward against the diaphragm by reason of a distended abdomen, whether the distension be occasioned by disease, such as ascites, or by obesity, or by a full stomach, or by a gravid uterus. A like disproportion will ensue, if the free expansion of the thoracic cavity be prevented by pain, by disease or rigidity of its boundaries, or by palsy of its muscles through interruption of the nervous circle whereon their contractions depend.

Cough is another of the symptoms, mentioned by Cullen, as denoting disordered function of the breathing apparatus. We need scarcely tell you that it is produced by closing the glottis, and then making a sudden and strong expiration. Its purpose is the dislodgement of mucus which may have collected in excess in the air-passages, or of any other source of irritation to the membrane lining those parts. To be effectual, it requires the admission of a certain quantity of air, and the possession of a certain degree of muscular strength.

But the sensation which prompts to the acts of coughing may arise from various other causes besides the accumulation of mucus in the air passages. Any slight irritation about the glottis ; a long, trailing and tickling uvula ; the inspiration of irritating vapours ; pressure of any kind upon the respiratory organs, may, any of them produce cough. Nay, it sometimes is provoked by sympathy with other parts ; an instance of which we have in what is called a stomach-cough. Some morbid condition, some irritation of the stomach exists, which being appeased, the cough ceases.

There are, indeed, certain varieties of cough, as there are certain modifications of the breathing, from which we may obtain very useful information even in respect to the nature and seat of *some* diseases : and these varieties and modifications we will point out as we go along.

Let us admonish you not to fall into an error which has been too common ; that of trusting entirely to the ear in the investigation of thoracic disease, to the exclusion or neglect of those phenomena which are perceptible by the eye, or by the hand ; or of those indirect revelations which are furnished by the condition of other parts and functions, or by the previous history of the patient. Even before the discoveries of Avenbrugger and Laennec, physicians were too remiss (if we may judge from their writings) in what may be called the mechanical exploration and notice of the actions of respiration. A good deal may be learned, sometimes, by merely placing one's hand upon the chest, or belly, and a great deal, also, may be made out, in some cases by the simple inspection of those parts, when they are uncovered. You may see, for example, that the ribs, in respiration, scarcely move at all, while the belly rises and falls alternately with the descent and ascent of the diaphragm. This is called *abdominal respiration.* It may arise from a painful condition of the intercostal muscles, or of the pleuræ, rendering the patient *unwilling* to elevate his ribs; or it may arise from disease of the spinal cord, between the origins of the phrenic nerve and of the intercostal nerves, rendering the patient *unable* to raise them ; or the same *inability* may result from disease of the lungs themselves. The symptom may guide us at once to the seat of the malady. Again, the breathing may be entirely *thoracic*, no motion of the abdomen taking place ; and this may depend upon an affection of the diaphragm, or of the pleura which is reflected over it ; or upon disease, accompanied with tenderness, within the abdomen—upon peritonitis, for example ; or upon mere distension of the abdomen. Or by looking at

the naked chest, you may see that one side of it moves, and that the other side moves less, or does not move at all : and the motionless side may be of the natural size as compared with the other, or it may be flattened and contracted, or it may be round and bulging ; and most important indications of treatment, will flow from a knowledge of these circumstances. The general form of the chest is also instructive. Never neglect, then, to examine the thorax, in cases where it is supposable that the disease may be seated in that part of the body, by your *eye,* as well as by your *ear.* The eye needs but little training to enable it to perceive and comprehend those signs which are within its sphere : the ear, unfortunately, requires to be carefully educated. We will just remark, further, that in the case of females, no indelicate exposure of the person need be made. In most instances the morbid conditions may be recognized through a thin linen covering.

If you strike the surface of the chest (it requires a little knack to do it properly,) and if the blow falls over a portion of healthy lung, you will produce a resonant or hollow sound. If the lung be not there, if it be pushed aside, and its place supplied by some more solid or inelastic substance, by fluid for example, you will hear a dead sound. So you will if the lung *be* there, but has lost its spongy character, is void of air, or somehow or other solidified. But you may have a resonant sound, though the lungs is in a state of disease ; nay, though the lung is not there ; so that percussion alone cannot always be depended upon. We shall tell you, hereafter, how to guard against being misled by it in such cases. Again, if you strike over the region of the heart, you will get a positively dull sound, or at any rate a much duller sound than in most other parts of the chest.

The position of the patient is of some consequence. It should be one that is convenient to the examiner, and not inconvenient to himself; and it should be one calculated to render the part struck as firm and tense as possible. The best position of all is a sitting position, on a firm chir. But you may percuss a patient very effectually as he sits up in bed, or while he stands, or some parts even when he is lying down. A good deal is said—more than is necessary—about the effect of curtains, and so forth, in deadening the sound. We do not believe they will ever interfere with your conclusions, especially as we learn more from comparing the sounds given out upon percussing the corresponding parts of the opposite sides of the chest, than from the absolute resonance or want of resonance of any single part. But there are some ex-

ceptions to this; and if your patient can be made to sit on a chair in the middle of the room, so much the better.

Then, if you are about to percuss the front of his chest, make him look to his arms over the corners of the back of the chair, and throw his head back. If you desire to explore in this way the lateral portion of the thorax, he must place the hand of that side upon his head, and lean a little to the opposite side. If you would know how the posterior part of the chest sounds, he must lean forwards, fold his arms across his breast, and bend down his head.

Next as to the mode of percussing. For direct percussion, the ends of the fingers of the right hand should be brought together, and into a line with each other, so that no one of them may project beyond the rest; and care should be taken, first, to compare the sound produced by striking any part of the chest on one side, with that produced by striking the corresponding part on the other side. It follows from this rule that we should not examine all the points on one side before passing to the other, because we should thus lose the remembrance of, and the power of accurately comparing the sounds obtained from corresponding points. It is best to strike first on one side of the body, and then on the corresponding spot of the other. It follows also that we are not to compare the result of percussion on one of the *ribs*, with the result of percussion on one of the *intercostal spaces*. The blow should fall *upon* the rib, and *parallel* to it.

A second point requiring attention, is the state of the chest in respect to the act of breathing. If one side be percussed after the movement of inspiration, and the other after that of expiration, some little difference in the resulting sounds will be manifest, even in the healthy condition of the thorax. And this might mislead. Let corresponding spots on the two sides be therefore both struck, either while the chest is expanded, or while it is collapsed, or while the patient holds his breath.

Thirdly, you must take care to strike the corresponding parts at the same angle, and not with the fingers perpendicular to the surface on one side, and inclined obliquely to it on the other: also to strike corresponding parts with the same degree of force. And the blow should not be hard enough to give the patient pain; indeed such a blow would not produce a good sound. It should be smart and quick; the ends of the fingers should not *remain* on the chest. Under some circumstances, however, the patient cannot bear to be percussed at all.

The latter cautions are most necessary when *direct* percussion is employed; over which *mediate* percussion has, however, many advantages. Some of these are obvious. In the first place, the space examined by mediate percussion is very exactly defined and limited. Secondly, you may strike the pleximeter much more forcibly than you could strike the unprotected body, and so produce a more decided sound. Even when the surface is morbidly sensible, or the patient unusually irritable, so that percussion in the ordinary way cannot be performed at all, it may generally be done through the pleximeter. A third and very great advantage is, that mediate percussion is available when made over certain parts where, even although there may be no pain occasioned by it, ordinarily *im*mediate percussion is attended with no useful result.—Parts, where there is much fat, and parts which are fleshy, or œdematous. If the pleximeter be pressed firmly upon these parts, even upon the mamma in females, the hollow sound is attainable; whereas, if they were struck by the fingers, the sound would be perfectly dull. Mediate percussion may be applied also, with effect, through the clothes.

It is right that you should be aware of differences of sound which belong to the individual. *Cæteris paribus*, the sound given out on percussion is more resonant during *in*spiration than during *ex*piration; in childhood and youth than in middle age; in middle age than in old age; in females than in males; in thin persons than in fat: and, *they say*, in nervous, irritable people, than in those of a contrary temperament.

If the ear be laid close to the surface of a healthy thorax (or if the instrument called the stethoscope be interposed between that surface and the air,) the ear will hear the air enter and fill the lungs, and then withdraw and leave them again, in perpetual succession. The sound produced by this ingress and egress of air has been called the *respiratory murmur*. Laennec says, that it resembles the sound made in the deep inspiration of a sleeping person; Dr. Davies, that it reminds one of the soft murmur of a pair of bellows, of which the valve does not click. But one minute's appliance of the ear to the subclavian region in a child, or even in an adult, will give him a clearer notion of the nature and character of this sound than any verbal description could convey. Yet respecting this natural respiratory murmur, there are some things of which it is desirable that the reader should be previously informed.

In the first place, the *entrance* of the air is much more noisy

than the *exit*: which, sometimes can scarcely be heard. We will see, by and by, the importance of noticing this fact.

In the next place, the murmur of respiration is not equally audible in all persons. It may differ much in intensity, though not in kind, in two persons, each of whom is in perfect health. Thus it is much more loud and distinct in children than in grown persons. So remarkably is this the case, that when we meet with an unusually noisy respiratory murmur in an adult, we say that his breathing is *puerile*; it has the character of the respiration of a child: that puerile respiration in the lung of an adult is generally a sign of disease; and it is mostly partial; heard in certain parts only of the chest.

Again, *cæteris paribus*, the natural murmur of respiration is more clearly audible in lean and spare persons than in such as are muscular and fat. Fat and muscle are bad conductors of sound, and act as dampers. Listening to the breathing through a thick layer of adipous tissue, is like listening (as Dr. Latham says) to the respiration of a person through his clothes.

But if you take two healthy men who are alike in respect to leanness and fatness, you may often find that the respiratory murmur is very loud in the one, and very feeble, or almost inaudible, in the other: but in this last it *becomes* audible when he takes a deep and forced inspiration.

The reason of this difference is not very well understood. The breathing may be very indistinct, though the thorax be capacious, and well formed, and healthy. Some persons seem to require less effort than others to maintain the due equilibrium between the air in the lungs, and the blood in the lungs: as if they had not only pulmonary space enough, but to spare. So that the difference in the manner of breathing, and in the sound occasioned by the passage of the air in and out, depends, in all probability, upon individual peculiarities of the circulation. At any rate, it is very important that you should be aware of the existence of these differences.

But the sounds which reach the ear applied to the chest of a breathing person will differ in different parts, and under different circumstances. The sound given out by the air as it passes through the trachea and larger bronchi, differs from that which results from its passage into and out of the smaller bronchi and air passages. Place the stethoscope over the trachea, and you will hear just such a sound as you might expect to hear: the sound of air rushing through a tube of considerable size, a blow-

ing noise. We will call that sound, which you will recognize again when you have once heard it, *bronchial* breathing. It accompanies the outward as well as the inward passage of the breath. Again, place your ear or your stethoscope upon the right mammary region; there you shall hear that rustling sound, which we propose to call *vesicular* breathing, and which is chiefly audible during inspiration. We shall find these distinctions of much use in the discrimination of disease. We shall find, for example, that the breathing sometimes is bronchial, where it *ought* to be vesicular.

Now if in any part of the chest where we should hear breathing, we can hear none, this may result from solidification of the subjacent portion of lung; or from some obstacle in a large bronchus, preventing the air from entering that part; or from air being in any way shut up and stagnant in that part. And here again percussion comes into play, and determines for us which of these possible circumstances is the one really present. If the part when struck emits a hollow sound, there is stagnant air beneath it, either in the healthy lung, or in the lung altered by disease, or in the cavity of the pleura. If a flat solid sound be given out, there is solid lung beneath, or liquid in the pleura, between the air and the lung.

The voice passes outwardly through the mouth and nostrils into the surrounding air; it passes also inwardly through the trachea and bronchi into the lungs, and it may be heard through the lungs, by the ear laid flat against the chest. But it gives quite a different sensation to the ear in different places. If you place the stethoscope on the trachea, the voice will articulate itself into your ear as if it came from and through the instrument. This sound, which is natural here, would be unnatural, and a mark of disease, if heard beneath the clavicles. When heard beyond its natural situation, it is called *pectoriloquy*. A less degree of this, a sound like that of a person talking into a tube, and whose words, for that reason, are muffled and indistinct, it is called bronchial voice, or *bronchophony*. When to this modification of the voice there is added a twanging vibration, a cracked discordant tremor, resembling the squeak of Punchinello, or (as some think) the bleating of a goat, *œgophony* is said to exist. All these unnatural modifications of the voice are indicative of most important changes within the thorax.

What is true of the natural voice, is true, *mutatis mutandis*, of that unnatural vocal sound, *cough*. The cough may be so mod-

ified by the condition of the internal parts, as to reveal that condition.

There are yet other ways in which some information can be gathered respecting the interior of the chest. If you give certain patients a sudden smart jog while your ear is applied to their thorax, you may hear a splashing sound, like that produced by shaking a barrel or a bottle partly full of water. From this expedient you in fact determine that the cavity of the pleura, or perhaps a large excavation in the lung, does contain both air and liquid. This is called the method of *succussion*. It was employed long before the other forms of auscultation were thought of. Hippocrates mentions it.

When you listen to the breathing of a healthy person, you hear, as the breath goes in and out, but especially as it goes in, a smooth and gentle rustle—the *respiratory murmur*, or the *vesicular breathing*. But when the inner surface of the bronchial tubes, and of their ramifications, is preternaturally dry and tumid, this sound is altered; you hear a hissing, or wheezing, or whistling, as the breath goes in and out; and this is technically called *sibilus:* or you hear a deeper note, a snoring noise, as the patient inspires or expires—a sound like the cooing of a pigeon, or the bass note of a violin, or the droning hum of an insect in its flight; and this is called *rhonchus*. These two, in their various modifications, constitute the *dry* sounds of respiration; and it will be worth while, once for all, to reflect upon their cause and nature, and the manner in which they are combined, and what they denote. You are aware that when air is propelled through a cylindrical tube of a certain size, and when that tube is narrowed in a particular way at one or more points, a musical note is produced. Now this is what often happens in the larger bronchi; this is what *always* happens in them when *rhonchus* is present. Rhonchus belongs to the larger divisions of the bronchi exclusively; and as these are often, for a time, exclusively affected, so rhonchus may exist *alone*. It will be grave or deep in proportion to the length and diameter of the tube in which it is produced. When the sound *is* grave and deep, the hand placed upon the chest may frequently perceive a trembling or thrill communicated to its parietes.—Ronchus is mostly occasioned by portions of viscid half solid mucus, which adhere to the membrane and cause a virtual constriction of the air-tubes, and act as vibrating tongues while the air passes by them, because it seldom happens that the rhonchus cannot be got rid of by a vigorous cough. It will soon begin again,

perhaps, or it will commence in some other part, but the effort of coughing, which detaches and removes the adhering tough mucus, dislodges also, for the time, the rhonchus. Yet, rhonchus in a given spot may be permanent; a tumor, or a tubercle, may flatten one of the air-tubes, and convert it into a musical instrument.—Now in the natural state of the chest, we do not, except in particular spots, hear the transit of the air through the larger bronchi.—Whatever sound it makes is damped by the spongy lung, or covered by the vesicular breathing. But rhonchus, in its turn, may overpower the vesicular murmur, and render it inaudible. It does not prevent it, but it outroars it, as it were. Yet this is seldom the case; you hear the rhonchus, and, if you listen attentively, you may in general hear, mingling with it, the vesicular murmur also. Recollect, then, that rhonchus belongs to the larger divisions of the air-tubes; that it denotes their partial narrowing; that it is a dry sound; and that the condition of which it is expressive implies usually no danger; there is no material obstacle to the passage of the air through these larger tubes to the vesicular structure beyond them.

In your earlier essays in auscultation you will be apt to deceive yourselves in respect to the exact place in the lung in which the rhonchus which you hear is produced. It is so loud a sound, that when it proceeds from a single bronchial tube it may be plainly audible over the whole of that side of the chest; and sometimes, more obscurely, over the other side too.

When air is driven with a certain degree of velocity through a small pipe, it gives rise to a hissing noise. It is by forcing air through a cylinder perforated by a slender tube, that Professor Wheatstone obtains the sound of the letter S in the talking machine which he has constructed, after Kempelon's model. Precisely this condition we have in the smaller bronchial ramifications, when the inflammation in catarrh or bronchitis has reached *them*, and rendered the membrane lining *them* tumid. And sibulus is the result of this change. Now sibilus, like rhonchus, may exist alone; and, inasmuch as the sibilus proceeds from the smaller air-tubes, adjacent to the pulmonary vesicles, it *abolishes* the natural respiratory murmur. It does not, like simple rhonchus, merely drown it, but it takes its place. If you hear the respiratory murmur mingling with sibilus, you may be sure that some of the lesser air-tubes are narrowed, and some free; you cannot have both sounds at once from the same ramifications of the bronchi.—Sibilus is a sound of more serious import, therefore, than rhonchus;

it bespeaks a condition of greater danger. It belongs to the smaller air-tubes and vesicles, and denotes that they are in the first stage of inflammation, which has diminished their natural calibre, by rendering the membrane tumid. It is a dry sound, but you cannot cough it away.

Rhonchus may occur alone, and sibilus may occur alone; but very often indeed they both occur together, and may be heard in various parts in different degrees; causing a strange medley of groaning, and cooing, and chirping, and whistling, and hissing, mixed, it may be, here and there, with the natural respiratory murmur. When you hear sibilus over the entire surface of the chest, the mucous membrane is universally affected, and the case is a severe one, and attended with considerable hazard.

It is just possible that a sibilant sound may proceed from a large air-tube, when its bore has been narrowed to a very minute slit or orifice; but this possibility does not interfere with the general distinctions that we have been endeavoring to point out.

Now in these cases we neither obtain nor require any information from percussion, except of a negative kind. Supposing the inflammation confined to the mucous membrane, the resonance on percussion will not be sensibly diminished; the lung is everywhere spongy still, and air reaches every part of it, though not with the usual freedom.

There is one exception to this. Occasionally, though rarely, a piece of tough phlegm may seal up, as it were, the very entrance of one of the principal bronchial tubes, and so prevent the air from passing to or from the portion of lung to which the tube conducts. When this happens, it is very likely to puzzle the auscultator for a time. There is air in the sealed up portion of lung, therefore percussion gives a natural sound; but the air is at rest, therefore no sound of respiration is audible. An effort of coughing unstops, perhaps, the bronchial tube; and then the air is again heard to enter and to depart from that portion of lung.

These dry sounds, rhonchus and sibilus, are heard during the *breathing;* they have no relation to the voice or to the cough.

After a while, the inflamed membrane begins again to pour out fluid; but it is not the thin, bland, moderate exhalation of health; it is a glairy, saltish, transparent liquid, like white of egg somewhat; and if it be expectorated only after much coughing, it will be frothy also, *i. e.*, it will contain many bubbles of air entangled in it. It is a stringy, tenacious fluid, and the more so in proportion to the intensity of the inflammation. With this new condi-

tion of the membrane, we have new sounds—sounds which result from the passage of air through a liquid; sounds which are occasioned by the formation and bursting, in rapid succession, of numerous little air-bubbles. These sounds are called *crepitations.*—This process may take place in the larger air-tubes, or it may take place in the smaller, or in both. In the larger tubes the *bubbles* will be larger, and the ear can readily distinguish this; we have *large crepitation.* In the smaller air tubes, we have, in the same way, *small crepitation.* There is no difference between these sounds, except in degree; and they graduate insensibly into each other. But there is a considerable difference in the nature of the intimations which their well marked varieties convey. If there be merely large crepitation, without any other morbid sound, it is produced in the larger tubes. Air passes, notwithstanding, into the vesicular structure *beyond* the accumulated liquid; and vesicular breathing *exists*, though perhaps it *cannot be heard*, on account of the crepitation. But the state of the patient is not a state of peril. On the other hand, small crepitation has its seat in the smaller air-tubes and cells; it supercedes the vesicular breathing, and, if extensive, it bespeaks considerable danger.

Rhonchus and large crepitation are respectively the dry and moist sounds that belong to the larger bronchi; sibilus and small crepitation the dry and moist sounds of the smaller branches.—When the latter sounds are heard over a considerable part of the chest, there is usually a good deal of distress, dyspnœa, and cough; and the fever which attends the local inflammation is at its height. By and by the expectoration becomes opaque, and more consistent, and of a greenish or yellowish color; it is brought up with more ease; the crepitation, great and small, diminishes; perhaps rhoncus reappears; but at last the parts return to their original condition, and the natural, smooth, equable rustle of the breathing is again everywhere audible.

CATARRH—INFLUENZA—COLD.

Description and Causes.—Having made some general observations on Bronchial affections, we shall commence with those diseases of the lungs in which the *mucous membrane* lining the air-passages is primarily or principally involved. This membrane is often affected *alone.* It is much exposed to known *causes* of disease; to alternations of temperature in the air which is constantly

passing over it; to the irritation produced by acrid or noxious matters, solid or gaseous, which are mixed and inhaled *with* the air. And when disease commences in *other* parts of the lungs, it seldom fails to reach, sooner or later, the *mucous membrane*. In diseases also of the *heart*, the same mucous membrane is very liable to be consecutively affected, by reason of those alterations in the condition of its capillary vessels which the disorder of the circulation produces.

In a former part of the work, we gave you some account of the peculiarities which differences of texture impress upon the phenomena and process of inflammation; and, among the rest, we spoke of the behavior of the *mucous* tissue when inflamed.

The mucous membranes, in the state of health, are perpetually *moist*. The exhalation of this moisture, to a certain amount, and *not beyond* a certain amount, constitutes an essential part of their healthy functions. An inflamed mucous membrane is in the first instance *dry;* its secretion is suspended. But this is not the only change that takes place in it; it becomes tumid also, swollen, thicker than before; it is redder than natural, and its sensibility undergoes a perceptible modification. *Pain*, in mucous membranes, is *not* a common phenomenon; for their texture enables them to expand or dilate freely, so that they escape much tension, and the pain which is produced by tension; but their natural sensations are blunted, and new and uneasy sensations arise in them —sensations of heat, fullness, itching. It happens that we can *see* a portion of the mucous membrane that belongs to the air-passages; and by noticing the changes produced in it by inflammation, we infer those which are apt to take place in the parts we *cannot* see. We have all often experienced in our own persons an inflammatory state of the membrane lining the nasal cavities; the Schneiderian membrane. At first the nostril is preternaturally dry; yet, though it is dry, you cannot breathe through it; it is stuffed up, not with accumulated mucus, but by the mere swelling of the membrane: the sense of smell is preserved or lost; the part is evidently red; it is tender, also, and irritable; the contact of atmospheric air a little colder or a little less pure than common, provokes sneezing. The affection extends often into the frontal sinuses, and headache and oppression ensue; or it passes into and through the lachrymal sac, the conjunctiva participates in the inflammation, the puncta lachrymalia become impervious, and the tears flow over the cheek. And with all this there is sometimes shivering or chilliness; and the pulse, especially in the evening,

becomes a little more frequent than common. There is slight fever. After the unusual dryness, the membrane begins to secrete a thin serous fluid, having acrid properties; for it reddens and frets the alæ nasi and upper lip, over which it flows. By degrees this thin serous fluid becomes thicker, and as it becomes thicker it becomes less irritating also, more viscid, opaque and yellow; the swelling of the membrane diminishes; it is less raw and sensitive; at length the secretion resumes its natural *quality*, and is reduced to its natural *quantity* again; and the tumefaction of the membrane entirely disappears. This is the course of what is properly called a *cold in the head.* When the defluxion from the nasal membrane is considerable, systematic writers call the complaint *coryza;* when it is attended with much pain and weight about the *frontal sinuses*, it is called *gravedo.* It is a variety of *catarrh.* In catarrh, sometimes one part, and sometimes the whole, of the mucous membrane of the air-passages suffers inflammation. If the disorder goes down into the lungs, it is said to be a *cold in the chest;* or, from one of the most prominent of its symptoms, a *cough;* in medical language, *bronchitis.* It sometimes travels from one part of the membrane to another. Beginning, for example, in the nose, it gradually creeps down into the windpipe and lungs. Sometimes the inflammatory condition passes from the throat into the Eustachian tubes, and produces deafness; or down the gullet and to the stomach, causing qualmish or other uneasy sensations, and loss of appetite. And occasionally this order appears to be reversed. There are some persons who will tell you that whenever anything disagrees with their stomachs, whenever dyspepsia is produced by some error in diet, they are sure to have catarrh.

Catarrh is the commonest of all disorders: not one man in ten thousand passes a winter without having a *cold* of some sort. And this name points to its ordinary cause: cold somehow applied to the body. It does not always or often result, we apprehend, from cold air brought into contact with the membrane itself, in the process of breathing; but from cold, and especially from cold and wet, applied to the external integument.

Catarrh is sometimes epidemic; and then it goes by the name of "influenza." We have numerous returns of this epidemic catarrh throughout Europe; and it is not confined to the human race; for horses, dogs, and cats are liable to it. There was a very remarkable influenza in England, in the year 1782; there having been one in the East Indies and China, in 1780. It appeared (as

many epidemics do) to travel westward;—having made its first appearance in the east. Respecting that epidemic, it is mentioned that an East Indiaman, (the Atlas) had its crew attacked while sailing from Malacca to Canton; and when it arrived at the latter place, they found that the people had all had influenza there, about the same time that the crew had had it at sea. This was an argument against the disease being contagious; for if the people had it out at sea, and found, when they arrived at a distant port, that the inhabitants had had it about the same time, it shows that it must have been something atmospherical, and not anything communicated from man to man. There has been a great difference of opinion respecting the contagiousness of different epidemics of this kind.

Diagnosis.—Catarrh is to be distinguished from the measles by the great mildness of the febrile symptoms, and by the absence of many of the symptoms accompanying the latter.

The disease usually comes on with a dull pain, or sense of weight in the forehead, a redness in the eyes, and a fullness and heat in the nostrils; which symptoms are soon followed by the distillation of a thin acrid fluid from these parts, together with a soreness in the throat, hoarseness, frequent sneezing, some difficulty of breathing, a dry cough, a loss of appetite, general lassitude over the whole body, and chilliness; towards evening the pulse becomes considerably quickened, and a slight degree of fever arises.

In the progress of the disorder the cough is attended with an excretion of mucus, which at first is thin, white, and expectorated with some difficulty; but becoming gradually thicker and of a yellow color, is at length brought up with greater ease and less coughing.

Even where there is not much affection of the system, it often happens that the natural evening paroxysm is considerably increased; and, from restlessness and frequent coughing, the patient is prevented from sleeping till the morning, at which time a crisis takes place for the present, and he then remains tolerably easy until the return of the evening paroxysm.

When the secretion of mucus ceases, the inflammation goes off also, so that a natural cure almost always arises in the disease.

Catarrh is seldom attended with fatal consequences, except when it either arises in elderly persons, attacks those of a consumptive habit, or has been much aggravated by some fresh application of cold, or by improper treatment; and it usually terminates in the course of a few days, if not neglected, either by an increased

expectoration, or a spontaneous sweat. In some instances it however lays the foundation for consumption, or gives a tendency to asthma and hydrothorax. In others it becomes habitual, and is accompanied by great difficulty, particularly in the winter: such patients often suffer fatally from the accession of sharp frost; their usual complaints immediately attacks them, and passes on to inflammation of the lungs, in which they are suffocated by the profuse effusion of viscid phlegm into the air cells and tubes. Very old persons are apt to be carried off by comparatively moderate attacks of catarrh, which seemed to wear out their feeble portion of vitality merely by the slight interruption to the function of respiration, which the phlegm secreted in the bronchial passages occasioned; and they quietly sink into the sleep of death, without any urgent symptoms or appearance of distress.

The inner membrane of the trachea usually appears on dissection, in fatal cases of catarrh, to be much inflamed, and its cavity to be filled with a considerable quantity of mucous fluid. The same morbid state is likewise communicated to the lungs which seem to be loaded with matter of a similar nature, producing suffocation.

There is a feeling, at the same time, of soreness throughout the body; and generally there is tenderness of the surface; which makes the person uneasy, if he press much upon any one part.—There is stiffness, and an aching of the whole body; but it is chiefly felt in the back of the neck. There is likewise headache, from the congestion in the frontal sinuses. Perhaps there may be more or less congestion within the head; at least that the former is inferior to the latter. There is likewise chilliness, and morbid heat. The patient is chilly, and creeps towards the fire; and yet if we touch him he is hotter than he should be. There is great sensibility of the surface; so that the least breath of air blowing upon him, causes a sensation of cold. The mind is also affected. There is heaviness of the head;—sometimes amounting to stupor; so that people are quite stupid. From the state of the conjunctiva there is frequently stiffness and smarting of the eyes; and, from the irritation of the membrane within the nostrils, there is sneezing. There is, also, from the disturbance of the membrane, loss or impairment of smell, and apparently of taste. People say they can neither smell nor taste. Many things may be smelt as well as tasted; and these are tasted just as acutely as before.—From the inflammation in the air-passages, the breath is hot; so that when we have a cold, the air expired from the lips is hot;—

as though it came from a hot place. There is generally hoarseness, some cough, and a little soreness at the front of the chest. When the mucous membrane is inflamed, it is sore at the division of the trachea; and there is soreness in the situation of the larger branches of the bronchia.

It is necessary here to notice a species of catarrh, with which persons advanced in life, and who have had frequent attacks of such affections, are apt to be afflicted. They are seized with a cough which, at length, becomes habitual and chronic, and continues for many years, proving extremely distressing. Its attacks are most common early in the morning, and the ill-fated patient, otherwise in good health, is thrown into fits of coughing, which last a long time, and are only terminated by a free expectoration taking place, when relief is immediately obtained. Next morning, however, the same distressing symptoms again seize the enfeebled patient, and thus the little strength he may have to support him during the fatigues of the day is nearly exhausted. In northern climates, in particular, this species of catarrhal affection is very frequently to be met with in elderly people; and seems to arise from an unusual quantity of mucus secreted in the bronchiæ, and perhaps in the lungs themselves, which, by impeding respiration, or mechanically irritating these parts, produces the cough.

Treatment.—All attacks of this disease, of whatever grade, readily yield to courses of medicine. Its milder forms require but little remediate attention—a few doses of composition daily during its continuance being all that is necessary. After the inflammatory symptoms have abated in severe cases, secretions from the lungs may be very much promoted by administering any of the pectorals, or cough medicine, arranged under the head of expectorants.

Sometimes there are to be met with, cases of catarrh which have continued many months, without any active severity, or purulent discharges. In such cases, fresh exposure should be avoided, and the patient directed to make frequent use of a snuff composed of equal parts of bay berry and blood root.

If, notwithstanding these means, the cough should be dry, or be unattended with proper expectoration, and, together with a soreness, produce shooting pains through the breast and between the shoulders, accompanied with difficulty of breathing, flushing in the cheeks after meals, a burning sensation in the hands and feet, and other symptoms of hectic fever, no time should be lost as there is reason to fear that tubercular suppurations will follow.

Under such circumstances, the steps advised in the treatment of phthisis-pulmonalis ought immediately to be adopted.

The best mode of treatment, is to keep the body perfectly warm;—so as to get rid of the chilliness. It is usual to increase perspiration by wine and brandy, and other stimuli; but it is better do it by caloric itself. The warm bath, or a vapor bath, is very good; and a local bath is also very proper; and when the patient is warm, plenty of hot liquids, without any wine or brandy, are exceedingly useful. If we put wine and brandy into hot liquors, there will most likely be headache afterwards.

Dr. Williams has recommended the *dry* plan of cure, which consists in abstinence from every kind of drink, but we should rather prefer the *wet* cure, which would permit the patient to drink any amount he might desire, and a good bath besides.

Dr. Comfort recommends the following treatment:—

"When patients are exposed to the open air, while engaged in their usual avocations, or to sudden changes of temperature, the medicine, such as capsicum and composition powder, should be taken in cold water. Taking freely of hot teas will open the pores of the skin, and may render the patient, at the time, more liable to take fresh cold if exposed to dampness, or a current of cold air.—Still, perspiration induced in this way does not render the system so liable to cold as when it is brought on by severe exercise.—When the patient is in bed, or not exposed to the cold air, hot teas should be taken to promote perspiration, assisted by warm applications to the feet. Simple teas of pennyroyal, dittany, or camomile, are beneficial, and may be drunk freely, to induce perspiration.

When liquids oppress the stomach, the compound lobelia pills will answer as a general medicine.

When the cough is hard and dry, the patient must be kept slightly nauseated with lobelia, and cough mixtures employed, such as flax seed or elm tea, with the addition of a portion of lemon juice and loaf sugar; onion syrup; bran tea; lemon juice with loaf sugar; or liquorice root tea may be used.

For sore throat wrap a stocking around the neck on going to bed, and keep the neck warmly covered at all times. Molasses and butter melted together, adding a portion of cayenne pepper, taken at bed time, will be useful."

Bathe the head and shoulders with *cold water*, and use the *cephalic snuff*. If these do not cure, use the following, which we have found a very valuable remedy: Take *common sage*, a table-

spoonful; *black pepper* a tea-spoonful: pulverize: smoke two or three pipes during the day, and force the smoke through the nose; this has proved a superior remedy. This treatment would probably be very useful in all chronic complaints of the head.

Dr. Leavit, a botanic physician, states that he has found the following snuff very efficacious in catarrh: *Blood root*, *gum arabic*, *gum myrrh*, pulverized, equal parts. He also asserts that he would not take five thousand dollars for an ounce of this snuff, in case he could not procure any more. He was reduced very low with the catarrh, and it cured him.

ACUTE BRONCHITIS—INFLAMMATION OF THE BRONCHIA.

Description and Causes.—When inflammation attacks the air passages at large, and particularly those within the chest (ramifications of the bronchia,) and affects these latter very severely, the disease is termed "bronchitis" (from *βρογχος* and *itis*;) inflammation of the bronchia.

This is the most common kind of inflammation of the lungs. The far greater number of those who have what is called "inflammation of the lungs," have inflammation of the ramifications of the bronchia; so that there is nothing heard of now but the "bronchitis"; whereas we formerly used to hear only of "pneumonia," or "peripneumonia." But since it has been ascertained that the inflammation which we every day see, resides in the mucous membrane of the bronchia, the term "inflammation of the lungs', has fallen into less frequent use; and we have, instead, the term "bronchitis." One portion of the substance of the lungs is made up of the bronchial tubes, and therefore the term "inflammation of the substance of the lungs" is very proper; because those tubes are an integral part of the lungs."

Bronchitis in its intense and severer forms differs from the milder kind mainly in the greater extent of the bronchial tubes which the inflammation occupies. It has on this account been studied under the two heads of *tubular* and *vesicular*. Tubular bronchitis is inflammation of the bronchial membrane lining the larger and middle-sized tubes, or wherever it lines tubes properly so called. Vesicular or pulmonic bronchitis is that variety in which the mucous membrane lining the air-cells of the lungs is inflamed. Something

also, will depend on the intensity of the phlogosis even on an equal surface. Like all the phlegmasiæ, bronchitis exhibits an acute and chronic form.

Diagnosis.—An inflammatory or other irritation of the lining membrane of the nose is indicated by sneezing, so is that of the bronchial tubes by cough ; but this is owing to the reflex nervous action, which gives occasion to a convulsive respiratory effort on the part of certain muscles, to drive the air rapidly through the air passages, and thus to sweep away from the mucous membrane any source of irritation that may exist there. Cough, consequently in these affections, is a mere symptom, although of old it was regarded as a distinct morbid condition.

In the first instance, the cough of bronchitis is dry, in consequence of the first effect of inflammation of the mucous membranes being to diminish or arrest the discharge from them; but this state soon passes away, and the mucous follicles secrete a larger quantity than in health, and a fluid of an abnormous character; the pathological state resembling, again, the common cold in the head, in which the usual mucous membrane is first of all devoid of its ordinary secretion, but soon secretes an unusual quantity of a thin mucus.

It is this condition, when accompanied by more or less hurry and oppression of breathing, and some degree of febrile movement, which we understand by the term " common catarrh."

When the inflammation of the bronchia is to a greater degree than this, a deep-seated pain is experienced in the thorax, with a sense of heat under the sternum; frequent cough, at first dry; difficulty of breathing, and excitement of the circulatory function in a ratio with the degree of the inflammatory action. More or less headache is generally experienced, especially after the fits of coughing; and if the inflammation is considerable, the face is red and tumid; the appetite gone; there is more or less thirst; the tongue is white ; and the mouth clammy.

At times, the fits of coughing occasion vomiting, and there is commonly, as in most febrile and inflammatory affections, an increase of the symptoms towards evening. Occasionally, too, the bronchitis is accompanied by phlegmasia of other mucous membranes, and there is a protracted febrile indisposition, to which the name " *Catarrhal Fever*," has been given, altnough the term is often used synonymously with acute bronchitis.

In severe cases, the cough is violent, and recurs in paroxysms occasioning a severe pain and sense of laceration, which is often

referred to the lower portion of the sternum. The pain shoots with violence from the ensiform cartilage to the back; and, owing to the exertion in coughing, the various muscles of the chest and abdomen are painful on pressure.

About the second or third day of the disease, the cough, which has been previously dry, becomes more moist, and a thin, frothy secretion is expectorated, with more or less difficulty—the sputa gradually become more copious and consistent, viscid and ropy; and, at length, are thicker, more opaque, and less in quantity.—Towards the termination of the disease in health, they become white, yellow, or, more frequently, of a gosling-green color; and, if expectorated into water, they are suspended at or near the surface. Occasionally, pus is united with the mucus of bronchitis, especially in cases of measles.

There is headache, sometimes very severe, when the cough takes place. The headache is of that character, when it exists at all, that patients almost always describe it as "a *splitting* headache;" and sometimes there is drowsiness. There is great congestion in the head; and a more or less inflammatory state.

The pulse is accelerated. It may be as high as one hundred; or even still higher. As the inflammation affects a mucous membrane, the pulse is generally large and soft. It may be hard—for there is a great variety in these things, but for the most part it is full, and rather soft; or, at any rate, not a *firm* pulse. There is not the softness of *debility;* but a pulse of no remarkable *power.*

The skin is frequently dry; and, of course, the tongue is dry, and generally of a dirtyish white color; and sometimes it is covered with a great deal of mucus. The skin, for the most part, is hot; and now and then persons sweat violently. The face, too, shows great congestion, General congestion probably takes place; for in many cases, there is drowsiness and headache; and there is likewise redness and fullness of the face. At the moment of coughing, the veins of the temples and neck are greatly distended, and the whole face becomes turgid.

Besides these symptoms, however, there are others which may be learned by the *ear.* As bronchitis is an inflammation of the inner surface of those tubes through which the air passes, they are necessarily altered in diameter; and instead of being only moistened, there is an *abundance* of mucus, and mucus of a different consistence to what it usually is; we must therefore suppose that there will be a very different sound in this disease, from what there is in health. On listening over the part inflamed, we hear, in-

stead of the natural murmur, a sound both louder and rougher than usual; and if the inflammation be very great, the sound is then so loud and rough, as to resemble the *snoring* of some small animal. This is called the noise of "*sonorous* respiration," or "sonorous *rattle*."

There is another peculiar circumstance in this affection: namely, that all at once, while we are listening, the sound occasionally ceases entirely; and if we continue to listen, we hear it again as before; or if we make the person cough, we then hear the sound of respiration again. This is peculiar to the disease; and arises, as is supposed, from a large tube becoming temporarily obstructed by mucus—so that its ramifications get no air; and, when the mucus is removed, the air enters as before. When the sound of respiration ceases in a part, if we only make the patient cough, that is generally sufficient to dislodge the mucus, and the respiration returns. This is called, by Laennec, a pathognomonic sign of this disease.

Sometimes, on placing our hand over the chest, we discover a vibration at the same moment; but that is not always the case.—It depends upon the extent, or the intensity of the affection. If the air pass with great difficulty, it shakes that portion of the chest. However, it is not of very great importance.

This *wheezing* occurs, not only when the person is *speaking*, but in a much more marked degree when he is *coughing*. If we have a doubt about the nature of the disease—as to whether it is bronchitis or not—because we do not hear a sonorous or sibilous rattle, by making the patient cough, we may then determine the nature of the case to a certainty. In coughing, there is generally a more violent inspiration; and as soon as we produce that, it will have the desired effect. Frequently also this disease may be detected at the back and root of the lungs, when we cannot find it anywhere else. In that situation, both in respiration and in coughing, sonorous and sibilous rattles are frequently heard, when they are heard nowhere else. In most instances, persons can tell a case of bronchitis without this; but sometimes they cannot. Sometimes it is difficult to say whether the disease was in the chest or not; whereas, by listening to the chest, and making the patient breathe quickly and cough, the disease has been fairly made out. In listening to the respiration, in a case where we suppose there is bronchitis, it is right to make the patient breathe as quickly as he can; and we shall then hear the sounds more distinctly; it causes still more full respiration.

If the affected part be at a considerable distance from the front, we cannot hear the rattles well. The nearer they are to the surface, the louder we hear them.

In bronchitis the sound on percussion is not altered; on striking over every part of the chest, we find it sounds as in health.—At the very moment at which we may cease to hear respiration at one part, if we strike that part, we still hear a hollow sound; and for this reason—although respiration is not going on, there is air there. There is no fluid collected, and no solidification of the lungs; but the air is there much as it is in health; and therefore, on striking, we have the natural hollow sound.

Treatment.—Perhaps there is no form of disease that has had recommended for its treatment among Old School writers, such a a variety, and such a contradictory course of medication. In our practice, however, we have a very simple and yet efficient treatment, and all our authors and practitioners agree, not only in this particular form of lung disease, but in all pectoral affections.

The whole treatment may be summed up in this catalogue: Expectorants—Diaphoretics—Stimulating Liniments externally—Gargles, both astringent and mucilaginous, with inhalation of vapors.

The treatment of a mild case of bronchitis, constituting ordinary catarrh, is extremely simple. It is generally sufficient to recommend rest in bed, the equalizing influence of the temperature being most salutary. At the same time the patient must abstain from animal food, and subsist chiefly on gruel or arrow-root, or tea; and, if the cough be severe, seek to allay it by means of jujube paste, simple gum lozenges, or any mucilaginous mixture or oily emulsion.

Before the patient goes to bed, the feet may be put into a mixture of warm salt and water, or water in which flour of mustard has been stirred, constituting the sinapized pediluvium of the French writers. Warm wine whey, also acts favorably as a gentle stimulating diaphoretic; but caution is needed, where there is danger of the prevention of acute inflammation of the bronchial tubes, or of other tissues.

We may, however, remark here, that the composition powders made into tea, with equal parts of Asclepias Tub. (Pleurisy Root) is far better than any stimulant that can be used. The Lobelia is the best expectorant in the Materia Medica in the treatment of

Bronchitis, as well as every other lung disease, this article should be freely used.

The following formula will be found excellent :—

R. Lobelia Inf. Pulv. Semen,	Grs. 50
Asclepias Tub., (Pleurisy Root)	" 50
Arnum Triph. (Wild Turnip)	" 30

Mix in cup of hot water, sweaten and use in teaspoonful doses every 15 to 20 minutes during the day, in bad cases, unless too much nausea is induced.

When the bowels are costive, injections should be used. Lobelia administered in this way, in simple lukewarm water, sometimes excites an almost magic influence in equalizing the circulation, and counteracting an undue determination of blood to the lungs.

Inhaling the steam of hot water, or of vinegar and water, is very soothing and useful when the cough is dry, or expectoration difficult.

The best gargle for sore throat is cayenne tea, or pepper sauce. The use of these excites the secretions, and thereby relieves the inflammation. For children, milder gargles should be employed, such as sage tea and honey, vinegar and honey, &c.

From the debility usually induced in protracted cases of bronchitis, night sweats are apt to occur. Under these circumstances, the medicine at bed time should consist of a strong tea of the bay-berry, or when liquids oppress the stomach, the compound lobelia pills may be employed, and in the morning, the surface bathed with No. 6 or pepper sauce; avoiding exposure to cold air. The clothing to be put on perfectly dry. A flannel garment wet with salt and vinegar, dried and worn next the skin, is recommended by some experienced physicians to check night sweats. The vapor bath we have found of benefit, in some cases, in preventing night sweats. A very moderate temperature of steam, however, will relax the system. It should therefore be as hot as the patient can bear, washing the face and breast during the steaming with vinegar or spirits and water, and at the close the patient may be showered, rubbed dry, and the surface bathed with salt and vinegar. Depending, however, upon debility, it will be difficult, in many instances, to prevent night sweats until the system gains additional strength.

The following formula will be found most valuable in treating Bronchitis :—

R. Simple Syrup,	Pint	1
Tinct. Lobelia,	Ounce	2
" Sanguinaria, (Blood Root,)	"	1
Essence Anise,	Drachm	½
" Gaultheria, (Winter-green,)	"	½

Dose.—One teaspoonful every hour, or as often as is necessary to produce relief.

CHRONIC BRONCHITIS—CHRONIC INFLAMATION OF THE BRONCHÆ.

Description and Causes.—Chronic inflammation of the mucous membrane of the bronchia, is an affection of very frequent occurrence in cold and variable climates. In its simplest form it constitutes those protracted catarrhal affections which are common during winter in old persons, and in such as are predisposed to pneumonic irritation. Cases of this kind generally commence with the cold weather, and continue to the end of winter. They are characterised by a troublesome cough, attended with copious expectoration of a viscid muco-purulent, or a whitish frothy matter; uneasy and somewhat oppressed respiration, accompanied at times with wheezing; more or less weight and uneasiness in the epigastrium; loss of appetite; a slightly furred tongue; irregular action of the bowels; a quick and irritated pulse, particularly towards evening; and a deep red and scanty urine. The coughing usually occurs in fits of considerable violence, being generally most severe in the morning on arising from bed, or on passing from a warm to a cold air. Sudden atmospheric vicissitudes, also, seldom fail to increase the violence and frequency of the spells of coughing; and the same effect is usually produced by the inhalation of irritating vapors, fine dust, smoke, and occasionally by the act of swallowing food. Slight transient pains, are, at times, felt in the chest; frequently, however, no painful sensations whatever are experienced except immediately after a fit of coughing, when a general aching pain is felt for a few moments in the breast.

There are certain cases of chronic bronchitis which are especially remarkable, on account of the great abundance of the bronchial secretion: so great that the patients die principally from the

daily exhausting drain thus made upon the system. There are sometimes no other evident signs of inflammation; so that, as Andral observes, one might be led to separate these fluxes from the truly inflammatory affections. They differ from them, apparently, in their nature, and certainly in the treatment which they require. Andral has detailed two or three instances of this kind in his *Clinique Medicale.* The patients expectorated every day large quantities—a pint or more—of frothy fluid, resembling weak gum-water in color or consistence. They had no fever; neither frequency of pulse nor heat of skin; but they were exceedingly pale, like persons blanched by hemorrhage, and their emaciation and weakness were also extreme. Very little appreciable deviation from the healthy state was detectible when the lungs and heart were examined after death.

It does occasionally happen that even large quantities—three or four pints daily—are, for a considerable period spit up, without much wasting.

Andral asks, whether, in such cases as these, which certainly occur, though they are not very common, the first indication of treatment should not be to check and diminish the excessive bronchial secretion; to treat it as you might treat a gleet of the other mucous membranes, with balsams, administered either by the stomach, or in the shape of vapour. He conjectures that it might have been in cases of this nature that the vapour of tar, and tar-water, were once thought to be so useful. Probably the creasote would be well adapted to such cases. Certainly we have seen the excessive expectoration diminish, and the patients gain strength, under the use of the balsams; the compound tincture of benzoin, for example; a form of medicine much employed formerly, and too much neglected, we apprehend, at present.

Without taking into consideration the general symptoms, the mucous rhonchi or *rales* will be found to occupy different situations in phthisis bronchitis. The modification of the respiratory murmur, which precedes the establishment of those *rales*, is heard at the summit of the lung in phthisis; the physical signs are constantly over the same part; whilst in chronic bronchitis, the *rales* are heard generally over the lungs, and vary in their character at different periods.

Chronic bronchitis is often a sequel of the acute form: but, as has been seen, it occurs as a primary disease. It is very common in advanced life, and especially in those whose constitutions have been injured by excesses. At times, it is observed in children,

especially after hooping-cough. Occasionally, too, it is associated with another affection,—as some organic disease of the heart, or tubercles of the lungs. Like acute bronchitis, it may be also occasioned by irritating substances floating about in the atmosphere. It is said, likewise, to have succeeded to the repercussion of acute or chronic cutaneous eruptions, and the suppression of some habitual flux or hemorrhage.

Chronic bronchitis is very frequently the cause of asthma.—When a part has been frequently inflamed, it becomes excessively irritable, and at length spasm takes place; so that, when a person has chronic bronchitis, it is worse at one place than another,—it is worse at one *season* than at another; and the patient will be seized all in a moment, with additional difficulty of breathing. We may sometimes have spasm without any inflammation of the bronchial tubes; but a common cause of spasmodic difficulty of breathing, is certainly chronic bronchitis.

The habitual inhalation of dust or fine metallic particles, detached in various processes in the arts, is a cause of a distinct variety of chronic bronchitis.

Stone-cutters, needle-pointers, they who powder and sift the materials for making china, and leather-dressers, are particularly liable to the disease. The first and most marked symptoms in these cases is dyspnœa, which may continue, however, for a considerable time without the disease declaring itself. But in the course of a few months the dyspnœa is increased, and is accompanied by a severe cough, and a copious expectoration, sometimes mixed with pus and blood. Not unfrequently the cough brings on a profuse hemoptysis. At this the constitution generally suffers much,—the pulse becomes quick; thirst and fever attend; the tongue is loaded; and the aggravation of dyspnœa occasions lividity of the countenance.

Diagnosis.—A large proportion of the cases usually regarded as true tuberculous consumption, consists of instances of chronic bronchitis; and as a correct diagnosis between these two affections is of much practical consequence, it is especially important that particular attention be paid to the distinctive phenomena, and pathological conditions of the present malady. This, as well as the former variety of bronchitis is the consequence generally of neglected catarrh; and it occurs occasionally as the result of an acute attack of bronchial inflammation. At first the symptoms resemble those of ordinary catarrh—the expectoration being viscid, thick, and opaque, but not yellow, containing small lumps, of a

firm or vascid, grayish, translucent mucus, which sink in water.—with these sputa, we sometimes find small membranous or flaky substances, which float on the surface of the water. As the disease advances, this viscid mucus becomes more and more mixed with a yellowish opaque fluid, resembling pus, and often slightly streaked with blood. In many instances, the expectoration, at last, acquires a whitish appearance, resembling cream, and sometimes a uniformly greenish yellow color, which readily sinks in water. At first, the pulse becomes slightly accelerated and tense towards evening; and the heat of the surface varies in the course of the day, being some times above, and at others below the natural standard. Partial sweats, about the head and breast, occur during the night. The thirst is generally considerably increased; the urine is high colored, and deposites a copious reddish sediment on cooling. A sense of soreness in the chest, with an occasional transient stitch in the side, is felt in the majority of instances; but there is rarely any *fixed* pain in the thorax. The cough is usually severe—principally on rising out of bed in the morning, at which time, the respiration is more or less wheezing, accompanied with a feeling of tightness in the breast. If the disease continues unchecked in its course, the expectoration becomes at last purulent and extremely copious. Debility and emaciation proceed rapidly and the difficulty of breathing, and sense of weight and tightness across the chest, become more and more distressing.—The pulse is now generally very frequent, being seldom under one hundred and twenty in a minute. In the early part of the day the face is usually pale, but a deep flush on one or both cheeks is commonly observed during the evening febrile exacerbations.—The tongue becomes clean, and in many instances "it assumes a shining appearance, and is redder than in health." Profuse and exhausting night sweats generally occur at this advanced stage of the disease; and towards the termination of fatal cases, colliquative diarrhœa, and œdama of the ankles, supervene as in tubercular phthisis pulmonalis. Indeed, in the latter stages of the disease, it is generally difficult, if not impossible, to distinguish it with certainty from consumption; nor is it less fatal in its tendency after it has advanced to this stage, than genuine pulmonary consumption. When chronic bronchitis is complicated with a liver affection, an occurrence by no means uncommon, it forms what authors have termed "*dyspeptic consumption*." In this variety of the disease, we have, in addition to the ordinary phenomena of chronic bronchial inflammation, various symptoms indicative of

hepatic disorder—such as tenderness and tension in the epigastrium and right hypochondrium; irregularity of the bowels, with unnatural stools; a sallow hue of the skin, and yellowness of the conjunctiva; flatulency; indigestion, with variable appetite; increased dyspnœa, and cough after taking hearty meals; furred and brown tongue; foul breath; and occasional nausea or vomiting. In some instances of this variety of bronchitis, no symptoms indicative of pulmonic affection occur in the commencement of the malady, the only manifestations of disease being such as are usually present in liver affections. A dull pain and tenderness in the right hypochrondrium, with increased uneasiness by lying on the left side; irregularity of the bowels; foul tongue, and depression of spirits, are, in such cases, the first symptoms complained of by the patient. The first warnings of disease in the bronchial membrane are slight. There is a dry cough, unattended with any pain. By degrees the cough becomes more troublesome, and when it continues for some time, a tenacious mucus is expectorated. The breathing, too, is in some degree affected, and the patient complains of weight and tightness across the chest. The bronchial affection now advances with more or less celerity, until a copious purulent expectoration, and the usual symptoms of hectic, are fully established.

The following diagnostic circumstances between chronic bronchitis, in the early period of its course, and tubercular phthisis, will in general enable us to distinguish these two affections from each other. In chronic bronchitis the face is generally pallid, and the lips of a bluish hue. In tubercular phthisis the lips are very red, and the cheeks more constantly flushed. "In the beginning of chronic inflammation of the bronchia, the hands and feet are often cold, and the temperature of the surface altogether more variable than in tubercular consumption." More or less inflammation and soreness usually occur in the upper portion of the pharynx, during the early period of chronic bronchitis, which is very rarely the case in tubercular phthisis. In the former affection the expectoration is free almost from the commencement, and continues to be blended with a large portion of transparent viscid mucus to the end of the disease. In tubercular consumption, on the other hand, the cough is for a long time short and dry. Chronic bronchitis is attended with much more oppression in the chest and wheezing respiration, though less pectoral pain than true pulmonary phthisis. The paroxysms of hectic fever are much less regular in chronic bronchitis than in tubercular phthisis. Besides these

diagnostic indications, the presence or absence of the ordinary signs of a scrofulous habit, as well as the origin and general progress of the disease, will in general, aid us considerably in discriminating these two affections. In its commencement and early stage, chronic bronchitis is usually much more distinctly inflammatory than scrofulous phthisis. It should be remarked, however, that these two forms of pulmonary disease may exist simultaneously; and phthisis pulmonalis is, in fact, not unfrequently associated in its advanced periods with chronic mucous inflammation of the bronchia.

Chronic bronchitis is very frequently the cause of asthma.—When a part has been frequently inflamed, it becomes excessively irritable, and at length spasm takes place; so that, when a person has chronic bronchitis, it is worse at one place than another; it is worse at one season than at another; and the patient will be seized, all in a moment, with additional difficulty of breathing.—We may sometimes have spasm without any inflammation of the bronchial tubes; but a common cause of spasmodic difficulty of breathing, is certainly chronic bronchitis.

The physical signs of chronic bronchitis are, like those of the acute, purely negative. The resonance of the chest may exist throughout. The different rhonchi or *rales* are heard as in acute bronchitis—for example, the mucous *rale*, which never occupies the whole extent of the chest, is not constant, and scarcely ever masks the vesicular murmur; sibilant *rales* of different character, which have been compared, in certain cases, to the clacking of a small valve, or to the pronunciation of the word *tic;* gurglings, like those of phthisis, heard in parts where dilatations of the bronchial tubes exist; and cavernous respiration, pectoriloquy, or diffuse bronchophony with humid *rale*, where the bronchial dilatations are considerable, and implicate a great number of the bronchia.

The diagnosis of chronic bronchitis is generally easy; but, at times, marked difficulties exist. Thus, incipient phthisis, when it has not induced much engorgement of the lung, and when the tubercles are not present in sufficient number to yield a dull sound, may be taken for simple chronic bronchitis; and, again, when the latter is accompanied by dilatation of the bronchia, it may present the least equivocal physical signs of phthisis.

By careful observation, however, the error may most commonly be avoided. Without taking into consideration the general symptoms, the mucous rhonchi or *rales* will be found to occupy different situations in the two diseases. The modification of the

respiratory murmur, which precedes the establishment of those *rales*, is heard at the summit of the lung in phthisis ; the physical signs are constant over the same part ; whilst in chronic bronchitis, the *rales* are heard generally over the lungs, and vary in their character at different periods.

That form of the disease which is characterized by great expectoration, and that of a character nearly resembling pus, which is attended by a little dyspnœa, but by no signs of congestion, and which is followed by emaciation—so that people waste, and at last become hectic, is continually mistaken for phthisis ; while on the other hand, that form in which there is congestion, is mistaken for hydrothorax. That species, which is so often mistaken for phthisis, and passed by, may, (if properly attended to) often be cured. This form, indeed, is better known by the *general* symptoms, than by the *peculiar* symptoms just mentioned. It is ascertainable by the ear, and by the absence of other symptoms of phthisis—just as the congestive form of the disease is known, not only by passive symptoms, but by the absence of signs of hydrothorax, or of disease of the heart, and so on. This form of the disease is known by the absence of pectoriloquy.

Treatment.—The same general course of treatment should be followed here, as in acute Bronchitis. Diuretics and emetics are of the greatest utility. By diuretics we unload the lungs considerably. There is always a great collection of serous fluid in the air-cells and tubes, and by diuretics we produce a great alleviation to the patient. We may give many diuretics together, when we cannot increase any one of them. It is certainly very common to give diuretics together, many of which have a tendency to produce sickness, without producing more sickness by the combination of the whole, than if we gave only one of them. The efficacy of a diuretic is generally thought to be much increased by giving an emetic. Great relief is derived from the exhibition of emetics, and among the best is lobelia.

It is always necessary to attend to the bowels. If we do not there is still more congestion ; but it is very dangerous to purge briskly. In these cases the powers of the patient soon sink ; and it is better to trust to emetics and diuretics.

We may soothe the air passages much by making the patient inhale different vapors. Patients may inhale the steam of hot water ; but one of the best modes is not to let them inhale the steam, but to have a vessel so contrived that the air they breathe comes through hot water. We cannot charge air with a dose of

salts; but there are many things which may be taken up by the air, and which may be inspired in this way; we might make a decoction of lobelia, or of extract of eupatorium, and let the patient breathe through it. We have not much experience of it, but have made the patients breathe it; and this has afforded great relief. Chlorine may be introduced in this way; and it lessens the irritation. Some persons employ iodine; but it is right not to use more than one drop of the saturated solution of iodine. Some patients will bear three or four drops, but some will not bear more than one. It is right to begin with the smallest quantity, and never to increase it beyond what is borne without the least irritation.

Where there is no fulness of the chest, but the bronchitis resembles phthisis—where the patient wastes away, and has a tiresome cough, tonics are of great advantage. Where there is a disposition to dropsy, emetics and diuretics are proper; but where the patient is more or less hectic, and is spitting up a great quantity—a state which often occurs in young persons—tonics are of great use, and iron is one of the best. In the first volume of the "Medico-Chirurgical Transactions," there is an interesting case of a lady, supposed to be in a consumption, but by means of three grains of sulphate of iron, taken twice a day, she got well.

As we find this disease often associated with gastro-hepatic derangement, some of our best chologogues will be beneficial—care being taken not to purge too freely. The Leptandrin will be one of the best; and if it should not be sufficiently active, let it be combined with a small portion of Podophilin.

Among the best diuretics we shall find the Eupatorium Purpurium, (Queen of the Meadow,) and in those cases where there is excessive expectoration, the Balsam Copœba and Balsam Tolu will be very soothing.

Good air and nutricious diet are indispensable to successful treatment. If there is a scrofulous tendency, alteratives must be used, such as sarsaparilla, burdoch, etc. The vapor bath, and other means to keep a good action on the skin, will be indicated in all cases.

In chronic bronchitis the patient should use moderate exercise in the open air as much as possible, provided it prove agreeable to his feelings; and he must observe an especial care to keep the body and feet protected from the cold. There is an instrument recently introduced into use, called a *respiratory*, by wearing which the patient can go out in severe cold weather, and experience no inconvenience in the lungs from the cold. Recoveries from this disease are greatly facilitated by fresh air.

A change of residence, more particularly to a *pine* country, or to the sea-board, provided salt air agrees with the patient, will, in many instances, prove of signal benefit. In other instances a removal from sea air is attended with striking improvement in the health of the patient.

The bayberry in a strong decoction, adding a teaspoonful of No. 6, or a small portion of pepper, should be given as often as once a day, where the tongue is coated. A very good mode of preparing bayberry for taking is to rub the powder up with honey, and then add a portion of luke-warm water, or what is better, a tea of aspen, poplar or some other tonic. This powder taken without being scalded, will make more impression upon the stomach than when taken in decoction. The astringent pills may be used in place of the above preparations, if the patient be averse to liquids.

The *purified charcoal* and white mustard seed may be used with advantage when the bowels are costive.

Inhaling the smoke of cayenne pepper, though a harsh remedy, has, in many instances, been attended with the most signal benefit. It is applicable to cases of long standing. The proper mode of doing it is to put a small portion of cayenne pepper on a red-hot shovel, the patient being covered with a blanket to confine the smoke; or let the patient breathe the smoke whilst in a vapor bath.

This inhalation of the fumes or smoke of pepper is adapted to cases of long standing, which are attended with profuse expectoration of a yellow matter, and where the substance of the lungs is not affected.

From the sympathetic relation which exists between the skin and lining membrane of the bronchial tubes, it is necessary to keep up a regular action of the cutaneous vessels, for in proportion as we increase the activity of these emunctories, so we lessen the influx of fluids to the lungs. Flannel and proper clothing should be worn to prevent the effects of cold and sudden atmospheric changes. Great attention must be paid to the extremities, that an equal circulation may be produced, by which the disease may be mitigated. A stimulating or strengthening plaster may be worn upon the chest. Spunging the throat, neck, and chest, with cold water daily is an excellent preventive.

PERTUSSIS—HOOPING COUGH.

Description and Causes.—Hooping-cough is a remarkable complaint, well known everywhere, and much dreaded by parents. It has received a variety of names; chin-cough; kink-hoast; coqueluche; tussis convulsiva; tussis ferina; and *pertussis*. The last name, which Sydenham bestowed upon it, and which was adopted by Cullen, is the technical appellation of the disease in this country, as hooping-cough is the popular.

Divers opinions have been held respecting the seat, and respecting the nature, of hooping-cough. Some suppose it to have its seat in the brain; and that it is essentially a spasmodic disease. Others maintain that it is situated in the air-passages of the lungs, and that it is always an inflammatory disorder. We do not pretend to strike the balance between these conflicting judgments. Certainly the simple form of the disease is often unattended with any appreciable fever; and that is a strong ground for believing that its peculiar phenomena are not *necessarily* connected with inflammation. They who have ascribed the complaint to a morbid condition of the brain, have deduced that opinion from the cerebral symptoms that are sometimes so plainly marked in hooping-cough. But these symptoms are oftener, to all appearance, the consequence, than the cause, of the paroxysms of coughing. It is an interesting point for your future inquiry, whether the pathology of hooping-cough may not receive some elucidation from the researches of the late Dr. Ley, respecting the crowing inspiration of infants. Observe further how the parts supplied by the pneumogastric nerve are affected in these paroxysms: the larynx, the lungs, the stomach. This conjecture, that the crowing inspiration of infants, and the crowing inspiration of hooping-cough—though quite distinct affections—may both depend upon irritation of the recurrent nerve, or of the pneumogastric nerve generally; and that even the irritation might in both cases arise out of enlargement of the glands that lie in the course of that nerve: this natural conjecture had presented itself to Dr. Ley's mind; for, towards the end of his book, we find this note: "Recently four children have been brought to my house, laboring under hooping-cough. In all, the glandulæ concatenatæ near the trachea were very considerably enlarged. Is this (he says) merely an accidental combination? or is there any essential connection between the two? May it not be that an enlargement of these glands, from a specific animal poison, similar to that of the parotid glands in

mumps, is, after all, the essence of hooping-cough? The subject at least deserves inquiry, and further observation."

In corroboration of this conjectural view of what *may* ultimately prove to be the true pathology of hooping-cough, we may remark that among the morbid appearances described as being met with after death from that disease, "an unusual swelling of the glands" is set down. It is also stated, by some of the Germans, that that portion of the pneumogastric nerve which lies in the cavity of the chest has been sometimes found red. Yet we should lay no stress upon this; for others have asserted that they have looked in vain for this redness; and even supposing it to exist, it is no sure or safe token that there had been inflammation of the nerve. The nerve, all things considered, would be likely to become tinged of that color soon before, or even after, death, from the gorged condition of the lungs. In some cases, as you may well believe, serous fluid is met with in the ventricles of the brain, or in the meshes of the pia mater; in others the consequences of inflammation are traceable in the bronchi, the lungs, or the pleura. Portions of what is called hepatized lung are not unfrequently seen in the fatal cases.

Pertussis is really regarded as contagious. It may appear sporadically, and, also, epidemically; during the latter occurrence alone it is believed by some to be contagious. Without denying its transmission in this way, we believe that in a great many if not in the majority of cases, it will be difficult to assign to it any such etiology. As only attacking a person once in his lifetime, its analogy to other admitted contagious diseases is plausible.—The greater predisposition in subjects of tender age is a fact of familiar observation. Of a hundred and thirty children with hooping-cough, whose cases were noted by M. Blache, a hundred and six were assailed between the first and seventh years from birth; and twenty-four only from eight to fourteen years. Sex seems to have its influence, from the fact of girls being more subject to the disease than boys.

The disease differs from some other epidemics—as the influenza—in not affecting any great belt of country. It is commonly, indeed, restricted to a small sphere, and this is one reason why it has been conceived by some to spread rather by contagious than by strictly epidemic influence. Whether it be ever produced by contagion, has, however, given rise to much discussion. Many deny it altogether, but the large mass of observers do not hesitate to admit it. With those who believe in its being a contagious dis-

ease, a question frequently arises as to the precise period at which it becomes and ceases to be so.

Diagnosis.—This disease is easily known when it has been once seen. There are occasional fits of violent coughing, with short expirations—a volley of them; and then one deep, long, hooping, crowing inspiration; and these are many times repeated. A quantity of viscid phlegm is spit up; and very often the child vomits. The cough is exceedingly severe; every muscle is put into action; the face grows red; the eyes "run;" and then the child, although unable to stand, and apparently about to be strangled, runs about and plays an instant afterwards, as if nothing was the matter with him. This is very commonly seen: and the cough will come on day after day. At first, there is generally some catarrh and bronchitis with it; and these are of various intensity, as is also the cough. Sometimes the bronchitis is very considerable; so that the child has a constant difficulty of breathing, a constantly quick pulse, and constant heat; and is exceedingly ill. The disease, although to a great degree spasmodic, and sometimes almost entirely so, is occasionally, on the other hand, inflammatory in a high degree. When it has been inflammatory, and the child recovers, the spasmodic cough will frequently continue, even for months after the inflammatory state has subsided.

The first notice of the disease, is generally occasioned by the extreme violence of the cough, or by a hoop. Very frequently it is not noticed at all, till the child hoops; and then there is no doubt of the nature of the disease. In fact, we are never justified in saying that the disease exists, till the child hoops. If the disease prevails in the neighborhood, and the child coughs more violently than usual, in all probability it will "turn" (as people say) to the hooping-cough. But if the disease be not fully formed, one cannot say with certainty that it is the disease, unless the child hoops.

If the bronchitis be violent, or if it continue for a great length of time, though not violently, the child may die. As a mere spasmodic affection, hooping-cough does not generally destroy life. In the greater number of cases where children die, there is a violent or extensive bronchitis, and a violent or extensive inflammation of the substance of the lungs.

During the urgency of the paroxysms, the face becomes swelled, and red or livid, the eyes start, the little sufferer stamps sometimes with impatience, and generally clings to the person who is nursing him for support, or lays hold of a chair or table, or whatever ob-

ject may be near him, to diminish (as it would seem) the shock and jar by which his whole frame is shaken. As soon as expectoration or vomiting have happened, the paroxysm is over. The child may pant a little while, and appear fatigued; but commonly the relief is so complete, that he returns immediately to the amusements or the occupation which the fit of coughing had interrupted, and is as gay and lively as if nothing had been the matter with him.—When the fit terminates by vomiting, the patient is in general seized immediately after with a craving for food, asks for something to eat, and takes it with some greediness.

Each paroxysm may consist of several alternations of the gasping coughs, and the characteristic hoop or kink; but Cullen remarks, that the expectoration or vomiting usually takes place after the second coughing, and puts an end to the fit.

The number of paroxysms that occur in the twenty-four hours is variable also; and they come on at irregular intervals. When the complaint is uncomplicated, the child during the intermissions appears to be quite well. This is another striking feature of the disorder. In the earlier paroxysms the mucus expelled is scanty and thin; and in proportion as this is the case, the fits are the longer and the more violent. By degrees the expectoration becomes more abundant; and sometimes it is very copious: at the same time it is thicker, and more easily brought up; and on that account the fits of coughing are less protracted.

The ordinary duration of the disease is from six weeks to three months; but it may run its course in three weeks; and it may continue for six months or more.

In an uncomplicated case, if you listen at the chest during the intermissions, you will probably hear the sounds that are proper to catarrh—some degree of rhonchus or sibilus; and in many parts there may be puerile respiration; and if you percuss the thorax, you get the natural hollow sounds. But what happens when you apply your ear to the chest during the paroxysms of coughing? Why, the information given us in this case by auscultation is very curious. You may perhaps hear, between the short explosive shocks of the cough, some snatches of wheezing, or of vesicular breathing; but during the long-drawn noisy inspiration that succeeds, all within the chest is silent. This is supposed to result from the slow and niggardly manner in which the air passes towards the lungs through the chink of the glottis, which is spasmodically narrowed. It may also depend, in part, as Laennec supposed, upon a spasmodic condition of the muscular or con-

tractile fibres of the bronchi and their branches. When the fit is at an end, the ordinary sounds of healthy or of catarrhal respiration are resumed.

Treatment.—This form of disease will seldom require any other treatment than a simple syrup of Lobelia to be given whenever the patient coughs. In bad cases let emesis be produced by a frequent use of the syrup or the tinct. of Lobelia, and here we have advantage over the Old School of Medicine, who use tartarized Antimony, and even Epecac, since we can give our hooping cough patients five or six emetics daily, if the cases require it, whereas it cannot be done with either of the articles above mentioned. We shall not advise the narcotics so often recommended by the Allopaths, for our Lobelia will accomplish all we can desire in this disease.

Bathing the chest in cold water in robust children will be found useful. So also the warm bath.

In the *third stage* or the period of decrement, advantage may be derived from the use of gentle tonics, as the cold infusion of cinchona, the infusion of gentian or colombo; and at this period, the excitant remedies—external and internal—advised in chronic bronchitis, may be employed with as much prospect of success as in this disease.

The patients should be warmly clad, if the season requires it, and wear flannel next the skin, whatever may be the season; and they should take moderate exercise, and food easy of digestion, and not in too great quantity. Should the convalescence be tedious, and the cough and other signs of pulmonary disorder persist, change of air, society and scenery; and, where practicable, if the winter is approaching, removal to a more genial climate, should be strongly recommended. In the summer season, the climate of the United States is amply adequate to all useful purposes, and, several of its mineral springs afford localities that are very favorable for the complete restoration of the valetudinarian.

It need scarcely be said, that the different complications which present themselves in the course of the disease, must be met by the modes of treatment recommended under their respective heads, the circumstance being always borne in mind, that after the complication has been removed, strength is necessary for the support of the patient through a long and tedious malady.

Injections must be used when the bowels are costive, or otherwise disordered. Lobelia, (say a quarter of a teaspoonful of the green powder,) administered in this way, in lukewarm water, and

retained ten or fifteen minutes, will have a decidedly beneficial effect, especially where there is an undue determination of blood to the head or lungs. Under its influence the circulation becomes more equalized, the system becomes relaxed, and very often free vomiting is produced.

When the face remains swollen and suffused with blood, an unusual length of time after the paroxysms of coughing, attended with stupor, stimulating injections and an emetic of lobelia should be given, and the feet be placed in warm water with a portion of mustard or cayenne added to it, or a vapor bath administered. This will prove the most effectual plan of treatment for preventing spasms.

In a more advanced stage of the disease, when the secretions become profuse, attended with severe fits of coughing, which come on periodically, an emetic or an injection, as above described, administered previous to the time at which the paroxysms of coughing commonly occur, will mitigate the cough and favor the expulsion of the viscid mucus from the lungs.

Super-carbonate of soda or saleratus-water, should be given two or three times a day, when there is evidence of acidity in the stomach; lime-water and milk may be given for the same purpose.

Dr. Thomas Cooke speaks as follows of the macrotys racemosa, (Black Cohosh,) as a remedy for Hooping-Cough:

"This article is the best, the most efficacious of all others in hooping-cough. We have used it in a great many cases and in all stages of the disease, and rarely has it failed to produce decidedly beneficial results, rendering the cough less violent, the expectoration freer, and, in many instances, apparently bringing the disease to an abrupt, yet happy, termination.

"The saturated tincture we have found the most convenient form of administering it. For a child of one year old the dose is from fifteen to twenty drops, four or five times a day. For one that is three or four years old, from half to a tea-spoonful, in a little sweetened water. We prepare the tincture by adding a pint of spirits to two ounces of the pulverized root. It may also be used in decoction."

A flannel waistcoat should be worn by the patient, as no doubt it promotes absorption, and prevents the vicissitudes of the climate taking that effect on the skin which we know it does, acting thereby as an exciting cause of coughing.

Young children should lie with their heads and shoulders raised, and should be cautiously watched, that when the cough occurs

they may be held up, so as to stand upon their feet, bending a little forward to guard against suffocation. Their diet should be light, and of easy digestion, and mucalaginous diluents should be taken freely.

PNEUMONIA—INFLAMMATION OF THE LUNGS.

Description and Causes.—This disease derives its name from the Greek, πνευμον, the Lung, and it is quite extensively used now by physicians of all classes, to denote any acute inflammation of the thoracic viscera. We shall limit its designation in our description, to the inflammation of the substance of the lungs, or air cells, and the cellular membrane around them. Peri-pneumonia would be a more appropriate term for the inflammation of the serous lining of the lungs, but as we do not wish to increase technicalities or multiply forms of disease, we shall include this term also under this head, and describe in a separate article, Pleuritis, or inflammation of the pleura itself. We shall include, for the same reason, Pleuro Pneumonia under the term Pleuritis, as the symptoms are very similar, and the treatment the same.

Pneumonia presents three degrees, or stages, which appear to be distinctly marked and easily recognized. The first is, Congestion, the second Hepatization, and third Purulent Infiltration.

In the third degree the lung is, externally, of a livid or violet hue, heavier and much more solid than natural. It is still crepitous, but much less so than in a sound state, and on pressing it between the fingers, we perceive that it is injected by a liquid. It retains the impression of the fingers nearly like an œdamatous limb. When cut into, it appears of a livid or blood color, is quite injected with a frosty serous fluid, more or less sanguinous, which flows from it abundantly.

In the stage of hepatization, the lung has lost its crepitous feel under the fingers, and has acquired a consistence and a weight resembling liver somewhat. If we cut in pieces a portion of lung in this state, hardly any fluid escapes from it. It has a granular appearance, especially when torn asunder, and these little granules are thought by Andrel to be the air cells converted into solid grains by the thickening of their parietes and the obliteration of their cavities by a concrete fluid. When a lung is hepatized throughout, it seems at first sight to be more voluminous than natural, but this is not so; it is caused by the inability of the lung to contract.

In the stage of purulent infiltration, the substance of the lung has the same degree of hardness and granular appearance above described, but it is of a yellowish pale or straw color. At first, the pus appears in small detached yellow points, and these gradually combine, and the whole lung finally assumes a uniform straw or lemon yellow, and when cut, pus will exude. When the lungs contain much black pulmonary matter, as is very common in adults and old persons, both the pus and the pulmonary substance assume an ash grey color, which have caused some to denominate it the grey hepatization. Here we have really the suppuration of the pulmonary substance, and this may go on, till one lung, and a considerable portion of other, may be wanting.

The three degrees of inflammation just described, may be, and commonly are, united in various ways. Sometimes one lung is affected in the third degree, and the other in the first or second.

Diagnosis.—Among the prominent symptoms we have cough, expectoration, pain, dyspnœa, and those symptoms resulting from auscultation, such as the crepitating sound transmitted to the ear when it is applied over the diseased portion of the lung. Lænec describes it as the crepitating rhonchus or the fine crepitation, as some others term it; it does not entirely replace the respiratory murmur of health which is more or less marked; but as the disease increases the natural murmur is concealed; we also have turgescence and engorgement, and sometimes in a few days hepatization, although in most instances it is some weeks before this second stage is fully developed. Hepatized lung is denser and more solid than before, and more easily crushed and broken. If we examine a torn surface with the microscope, the pulmonary tissue will appear to be composed of a crowd of small red granulations, lying close to each other. We suppose them to be the air vessels clogged up, thickened and made red by congestion. A lung thus diseased does not collapse when the thorax is laid open. Pneumonia in some cases may go through its course without either cough or the expulsion of any sputa or even pain—this latent form of the disease is met with in lobular Pneumonia, and is oftener seen in children than in adults.

When Pneumonia terminates by suppuration, the sputa are greyish, inodorous, and in a measure purulent, and may lose their viscosity and resemble a liquid of the consistence of gum-water and of the color of liquorice or prune decoction. The termination of grangrene is manifested by the expectoration of a greyish matter, which yields after a while a dirty grey, and ex-

hales a very fœtid and characteristic odor. When Pneumonia passes into a chronic state, the sputa are like those of pulmonary catarrh. The dyspnœa is usually in proportion to the extent of the digestion. When the breathing is hurried and laborious and the feeling of oppression so great that the patient sits up in bed and complains of weight in his chest, the face of a violet red or livid hue, and pants to such an extent that the speech is very difficult, if not impossible, we must form an unfavorable prognosis.

Pain in Pneumonia, says Andrel, is never felt, unless there be pleuritis co-existing, yet Lænec says that inflammation of the lung has given pain, and it is increased by coughing, a change of posture and pressure on percussion. The decubitus is generally on the back.

As general symptoms, we shall perceive a disordered circulation with a frequent and full pulse, and sometimes hard, and this becomes small when the congestion is very violent, and we may always suspect some disease of the heart. The cheeks are flushed and red, the thirst is excessive in some cases, and not pleasant in others. The cutaneous exhalations manifest a great variety, the skin is very dry in some cases, and in others, it is bedewed with moisture, and this may become a copious sweat, which if natural, and the symptoms favorable, is a good crisis; but if this perspiration is viscid and sticky, and we begin to perceive more or less typhoid symptoms, it may be regarded as very unfavorable, and without energetic treatment the patient dies.

One of the most constant symptoms, and indeed almost conclusive, is the excessive heat of the skin; it may be said to be pungent, and we shall seldom find, in any form of disease, the surface so hot. The urine is of a deep, red color and deposites a lateritious sediment, and it has generally been found to be acid as in almost all cases of inflammatory affections. Where the right lung is affected, we often find hepatic irritation, and the flow of bile is attended with bilious vomiting, and this is often denominated bilious Pneumonia; the skin, eyes, and tongue are yellow and all the symptoms of jaundice, with the headache, etc. Unless we have typhoid Pneumonia we seldom perceive the nervous system to be effected. The duration of this disease is from three days to twenty; sometimes with the most judicious Reform treatment it will resist all remedies for ten to twenty days, especially if the early treatment is neglected.

Pneumonia is a very different disease in childhood; and as it

is then marked by some very important modifications in its general characters and results, it demands a separate consideration.

The inflammation may be confined to the minute lobules of the lung, or it may attack pulmonary lobes. The first constituting lobular, and the second lobar pneumonia. In both forms of the disease the inflammation may be confined to a small portion of one lung, or extend to nearly the whole of one or both.

In very young children the symptoms of pneumonia, particularly at the commencement of the attack, are very obscure, and even when more distinctly marked, they differ but little from those of bronchitis.

In infants the attack is very generally preceded by symptoms of a mild bronchitis, to which there usually succeeds a chill, differing in its severity and duration in different cases; this is followed by increased heat and dryness of the surface, increased frequency of pulse; accelerated respiration, dyspnœa, and a short dry cough. These symptoms quickly augment in intensity—the lips become of a bright red, the tongue of a florid hue, and somewhat dry, and coated along its centre with a thick white fur. Often there is from the commencement of the attack vomiting, and, in young children, diarrhœa. In many cases there is considerable agitation and anxiety, in others decided drowsiness, and more rarely convulsions; these are sometimes violent and repeated, and often followed by an entire loss of consciousness. Convulsions, according to the observations of Rilliet and Barthez, are confined to cases occurring in young infants, where the inflammation is seated at the summit of the lungs.

In infants at the breast, in the early period of the attack, the breathing is no longer affected solely through the nose, but the little patient lies with the mouth partly open, and drawing in the air through it. The tongue becomes in consequence preternaturally dry, and the child sucks by starts—seizing the nipple with eagerness, sucking for a few minutes with greediness, and then suddenly dropping the nipple, and in most instances commencing to cry or moan.

In young children, or those under six years of age, pneumonia is frequently preceded by the extension of the inflammation from the extreme branches of the bronchi to the exact date of its occurrence. Occasionally, at the period the pneumonia supervenes, there is a well marked accession of fever and dyspnœa, and an aggravation of all the symptoms. The febrile symptoms are less than in the other forms of the disease, but the dyspnœa and dis-

tress are usually greater, and the face presents from the first a more livid hue. The respiration is more hurried and irregular; the irregularity coming on at an earlier period. Head symptoms are more frequent, the patients head is disturbed, and he often mutters in his sleep, and has far more restlessness and jactitation when awake. Convulsions and coma more frequently precede death, which occurs at an earlier period than in the other forms of pneumonia.

Pneumonia in children is generally attended with loss of appetite and increased thirst, and a torpid state of the bowels; when the disease however, is complicated with enteritis, profuse diarrhœa may be present throughout the attack. In these cases furunculi or ecchymoses occasionally cover the skin, while the blistered surfaces are liable to become ulcerated.

In favorable cases of primitive bronchitis, the acceleration of pulse and respiration attain their greatest intensity generally by the end of the fourth, fifth, or seventh day, or, at the farthest, by the ninth day: when the heat of the skin and the frequency of the pulse diminish, respiration becomes slower, and the inspiratory movement is unattended with dilatation of the nostrils. The cough becomes more free and moist, the fever quickly disappears, the face becomes paler, and the expression of the countenance more natural. The respiration finally assumes its normal rhythm, the cough rapidly diminishes, and in a few days convalescence is fully established.

The prognosis in Pneumonia is always serious, from the fact that one of the most vital organs is affected, and it is so difficult to apply our remedies to the parts. A pulse up to one hundred and twenty and hurried respiration are bad signs—so is an obstinate cough with scanty or difficult expectoration. The appearance of the sputa are in proportion to the intensity of the congestion; when the sputa are rusty and viscid and small in quantity, the irritation is increased by the continual efforts to evacuate it.—Dirty or watery brown sputa, and those containing pus, show the third stage, and a gangrenous odor generally implies a state of great peril. A sudden suppression of expectoration is generally an unfavorable sign, so also is a dry harsh state of the skin, a loaded or parched tongue, tenderness of the epigastrium, great thirst and sickness of the stomach. The profuse and viscid discharge from the skin and from the bowels are bad, yet both may prove critical in some cases as the disease leaves the system. A copious deposit in the urine is favorable, and the remark of the great Hip-

pocrates is now verified that, if after the urine is turbid and becomes clear before the fourth day of the congestion, a fatal result may be anticipated. Delirium is a symptom of danger, so is comatose or lethargic state. A copious and easy expectoration is favorable, so is a moist and natural skin. The complication of this disease with any others, increases the danger, and so with age and any other debilitating affections and conditions.

Treatment.—Although this form of disease is considered among the Allopaths as a very formidable one, and great mortality attends it, yet we have the most indisputable evidence that it yields very certainly to judicious Reform medical treatment, if it is applied in season. There are few cases where a full and free emetic of Lobelia is not indicated, and this should be followed by expectorants, a portion of which should be lobelia in some of its forms. We cannot recommend (blood root) San Can. or (skunk cabbage,) Ictod. Fœt. to be combined with the emetic or the expectorant.—Particular attention must be paid to the skin, and it should be kept moist by a gentle perspiration, the (white root) Asclep. Tuber. with a small quantity of lobelia sufficient to make the draught a little nauseating, will relax the system and keep up a termination to the surface. If this should not produce the desired effect, a vapor bath must be administered, which, with the above remedies, will produce the most speedy relief. If proper attention is paid to the skin we shall find the lungs much relieved and the congestion greatly modified.

Mucilaginous drinks are necessary in some cases, and will be found beneficial where the expectorants do not afford immediate relief, or after the free bronchial expectoration has been affected. Balsams and pectoral syrups should not be used while the acute symptoms continue, but they may be very valuable after convalescence begins, as they are soothing and healing.

The feet should be frequently bathed in warm water, and hot applications put to them when in bed.

Stimulating liniments and bitter herb fomentations applied to the chest will be found to afford relief. If the bowels are costive a mild aperient may be given or a stimulating enema, but a drastic purgative should never be administered under any circumstances in this form of disease.

If typhoid symptoms begin to show themselves, let the whole body be sponged with ley water and pepper sauce alternately night and morning, and if the restlessness continues let Bankston's Anodyne be given, from twenty to thirty drops, or if the stomach is

irritable let it be given in the form of a pill, from one to three pills at night.

The temperature of the sick room should not be too cool, neither too warm—an average of sixty degrees will be the best for all patients laboring under lung difficulties, and the air should be pure by perfect ventillation. In severe cases the head should be well raised up, and muscular exertion of all kinds should be prohibited and all conversation except so far as is particularly necessary.—During convalescence, and even after a perfect recovery, the lungs will always be liable to similar attacks, hence the most judicious means should be used to prevent relapse, and as prophylatics.—Mothers and nurses, as well as those who follow the fashions of the day, have a fearful responsibility resting on them in reference to the thin clothing and exposure of the chest to the cold and bleak atmosphere of this climate.

In this, as well as other diseases, it will be necessary, in the incipient or first stage of inflammation of the lungs, to produce free and copious perspiration, by administering *sudorific medicines;* and a very excellent method to answer this purpose is, to steam the patient over *bitter herbs*, as mentioned in other parts of this work, or by making use of the vapor bath. This may be resorted to if the strength of the patient will enable him to sit up; otherwise the *sudorific or sweating drops* may be given in the usual manner, until the patient perspires freely for several hours, and this must be continued in moderation until the inflammation has subsided. This single operation will divert the blood from the lungs and prevent congestion, lessen the febrile excitement by equalizing the circulation, remove the pain, and favor expectoration. When the patient has recovered from the operation of free perspiration, a *purgative* may be given, and occasionally repeated during the disease. When the arterial action has diminished, mild *emetics* may be administered; they generally produce immediate relief from the oppression of the chest, cause a determination to the skin as well as a free expectoration. They expel the viscid mucus which fills the air cells of the lungs, restore respiration, and thereby increase the strength of the system. These may be repeated as often as the circumstances of the case justify. The *emetic powder* is the best medicine that can be administered.

It will be found very serviceable to inhale the steam of bitter herbs: the tension of the lungs is thus removed, and mucus expectorated with more freedom; and these may be repeated frequently through the day.

The cautions in reference to pure stimulants so often reiterated by our Old School authors, are not to be regarded, since they will be found useful in every stage of the complaint.

Tonics are required during convalescence, and the same general treatment that we recommend for all cases where the powers of the system have been reduced. The diet also should be nutritious and easy of digestion.

Pneumonia is often complicated with the heart disease or some other functional derangement; when this is the case but little change will be necessary from the treatment above described till the Pneumonia is cured.

The following thorough treatment is recommended by Prof. A. Curtis :—

"Give him plenty of warm teas of an antispasmodic kind; as boneset, catnip, etc., enemas of composition, and put him into a bath of moderate temperature, with his feet in hot water, and scour his surface well. If this, with bitters, etc., does not prove sufficient, you should give him a full course of lobelia, and the proper assistants. The pain in the forehead may be moderated by cool applications, neurological applications, etc. In this case, in croup, and in all cases of pulmonary affections, the bath should be medicated with aromatic stimulants and expectorants put into the reservoir for that purpose, or into the kettle of water where you have no such convenience. Expectorants should also be given between courses; let it be ever remembered, that dependence should be placed upon these only for the relief of the lungs of their mucus for the present, your efforts being mainly devoted to the attraction of the inflammatory action to the surface and lower extremities.—In the early and inflammatory stage, the expectorants should consist solely of relaxants and emollients, as lobelia, slippery elm, etc.; in the chronic form, they should be more stimulating, as boneset, hoarhound, etc., and sometimes a little cayenne. Holding in the mouth and near the fauces, for some time, a few drops of lobelia, tincture or decoction, so as to cause free expectoration until the sputa becomes white, clear and slippery, will be found serviceable. Then use nothing but what is very soothing, as gum arabic, slippery elm, etc., until the lungs become clogged again. Hoarhound tea will be good as a common drink, as it will promote a healthy secretion of mucus. This, the cough will raise and remove. When the action is permanently determined to the surface and the feet constantly warm, the cough will cease, because it will have no work to perform."

In consequence of the nervous sympathy between the stomach and the circulation, and the tendency of emesis to relax the cutaneous vessels, ordinarily a simple emetic—for which nothing is better than a proper preparation of lobelia inflata—is desirable at the outset. After this, for a depurative effect, a due action of the bowels should be sustained, though drastic purgatives should be avoided. As an aperient, no agent better suits most constitutions than leptandria virginica, which may be given in a warm infusion. If this is objectionable on account of the unpleasantness of the dose, the leptandrin may be constituted, its aperient power being increased by the addition of a small quantity of podophyllin—say take of leptandrin three parts, and of podophyllin one part. If to this, one part of pulverized capsicum be added, its stimulating effect will render the operation milder and more recuperative. Let the quantity be such as barely and easily to evacuate the alimentary canal.

Stimulating expectorants should be used plentifully even from the beginning of the attack. Seneca Snake root, Wild Turnip, Coltsfoot, Lobelia and ginger are among the most valuable of this class of remedies. One or more of them may be employed, either by themselves or combined with the Diaphorectic infusion. Lobelia to the point of moderate and continuous nausea, exerts much beneficial influence. The bowels are to be kept soluble by enemas or mild laxatives, but active catharsis is not admissible at any stage.

A tea of Balm, Catnip, Sage or ginger may be used as a common drink.

When the acute inflammation has subsided, treat with pulmonary balsams, expectorants and alteratives. White pine bark, Tamarac and Spikenard make an excellent syrup. Balsam of Tolu and Syrup of Ginger are very fine. The Mallows of Maidenhair are good demulcents in connection with the spikenard. A decoction of Lungwort, Boneset, Yellow Parilla and Beth root is a valuable preparation during convalescence.

PLEURITIS—PLEURISY.

Description and Causes.—This word Pleurisy, is derived from the Greek πλευρίτις, and it was used by Hippocrates to denote a pain in the side, and properly speaking, it signifies every kind of pain in the side, particularly such as are of considerable vio-

lence, continued and accompanied with acute fever. This circumstance, and the small progress made by pathological anatomy before the end of the last century, gave occasion to many controversies, respecting the true character and seat of this disease; some consider this as an inflammation of the pleura, some as an inflammation of the lungs, others as having its seat in both of these, or sometimes in one and sometimes in the other. We shall, however, confine our description to *Pleurisy* proper, signifying inflammation of the pleura, whether it is attended by a stitch or not. *Peri-pneumonia* is nearly synonymous with pleurisy, and *pneumonia* will always stand for inflammation of the lungs, even when accompanied by acute pain of the side, while pleuro-pneumonia will indicate the co-existence of inflammation of both organs. A careful and minute examination may enable us to distinguish the peculiarities of position and circumstance which appertain to each of these cases, yet this will afford us no practical advantage whatever.

Inflammation of the pleura, if it exist but a very short time, will necessarily give rise to a similar affection of the pulmonary tissue immediately beneath it; and thus these local conditions, however cognizable at first, are soon confounded by extension and run into each other.

The causes of pleurisy are identical for the most part with those of pneumonia; anything which produces a sudden chill and stoppage of perspiration, such as atmospherical changes, cold drinks in the stomach, or chillness produced from any cause. The young are more subject to this disease than the aged; those persons are predisposed who have previously suffered with pneumonia or who have tuberculous deposits. A rupture of the pulmonary vesicles which makes a communication between the cavity of the pleura and bronchæ will cause partial pleurisy. A particular state of the atmosphere will give rise to epidemic pleurisy.

The pleurisy, or the congested state of the pleural lining of the thorax, often gives rise to a texture alteration, an adhesion of the pleura to the lungs by pouring out a serum of coagulum; we have noticed this in more than one-half of the cadavers we have dissected, and who have died of every form of disease. The pleura, in pleuritis, is sometimes reddened by a delicate injection, which is noticed in the subserous cellular tissue. Sometimes these false membranes are formed after a few days sickness; and again, it may be two or three weeks from the invasion of the disease.

Simple pleurisy occurs most frequently on one side only, or

what is termed single, and rather oftener on the right than the left side. Pleuro-Pneumonia is also mostly single, but more generally in the left side. Double pleurisy occurs mostly as a consecutive disease. There are pleurisies, with and without effusion, and unaccompanied by pain, cough, dyspnœa or accelerated pulse; there are well marked cases also which give no dulness of sound, nor any modifications of the respiratory murmur.

Pleurisy is often occasioned by mechanical violence, or by the accidental extension of disease from the other parts; and the course, and the event of the disease, are liable to be considerably modified by the nature of its cause in such cases.

Pleurisy may be excited by the splintered ends of a broken rib; and if the pulmonary pleura be wounded in that manner, air may get into the pleural cavity, as well as into the areolar tissue beneath the skin; constituting the true and genuine *emphysema* of our forefathers. Pleurisy may be determined also by a penetrating wound of the thorax; or by a perforating ulcer of the pulmonary pleura, the extension of a tubercular excavation. In the one case air will enter from without, if the aperture be sufficiently large; in the other, air will pass from the lung into the cavity of the pleura. In all of these cases of air finding its way into this serous sac while in a state of inflammation, the event of that inflammation is much more likely to be the effusion of *pus*, than when no communication exists between the inflamed membrane and the atmosphere. But another very curious consequence results from the admission of the air, and its co-existence with puriform or other liquids in the sac of the pleura. New auscultatory signs arise, very easily appreciated, very instructive, and therefore very necessary for you to be acquainted with.

You must know that when the pleura contains air alone, the patient is said to have *pneumothorax;* and when (what is infinitely more common) the air is there in company with liquid, he is said to have *pneumothorax with effusion.* This is the name given to that condition of the chest by Lænnec; and it serves its purpose sufficiently well. Pneumothorax, then, often proceeds from one or other of those causes of pleurisy just mentioned. It is sometimes produced by the operation of paracentesis thorasis; by the opening made into the thorax by the trocar of the surgeon, in order to let out its fluid contents; in plain English, by *tapping* the chest. The modifications of sound that result are particularly curious. Of course the air occupies the higher portion of the cavity and the liquid the lower, in whatever position the patient may

be placed. And this being the case, *percussion* will give a remarkably hollow sound when made upon the uppermost part, and a totolly dull and flat sound when made upon the lowermost part; and the change from the hollow to the dull sound will often take place quite abruptly, so that you may trace out the exact level at which the surface of the effused liquor stands. And if you reverse the posture of the patient, the resonant and the dull sounds will interchange their respective places; the uppermost part always yielding the clear, and the undermost the flat sound. This is just what you would expect. The result of the experiment is the same whether you make it upon the human thorax, or upon a beer-barrel. The resonant part, you are to observe, will be much *more* resonant than it would be in health—more resonant (you have always the other lung to test it by) than the corresponding portion of the opposite side of the chest—tympanitic, drum-like; for the air is not involved in spongy lung, but contained in a free space; and the sound is not damped, as in a healthy chest it is damped somewhat, by the *presence* of the lung. Moreover, no respiratory murmur can be heard where this tympanitic resonance occurs; nor can any thrill be felt.

The quality of the pleuritic secretion is various, sometimes colorless or of a citron hue, limpid and transparent; in other cases it is turbid, or green or yellowish brown, or ash-colored, and thick; again, it is truly purulent, and sometimes almost jelly; it may consist of blood, as it does more frequently in the tubercular form of pleurisy.

Diagnosis.—Among the most prominent we have the following symptoms, viz: fever, pain in the side; acute, pungent and lancinating, as if a sharp instrument were driven into the side whenever the patient inspires. There is difficulty of breathing which is quick, short, as if jerking; cough, dry and hard, frequent pulse, flushed face, and most generally decubitus on the back, or on the affected side.

In the first stage, the skin is very hot, and the pulse is hard and tense. Without good reform medical treatment, this disease will result in effusion within the pleura, and then profuse sweating may come on and the system rouse up all her energies to dispel the accumulation. If there is no effusion, and we have labored respiration, it must proceed from the pain being opposed to the free contraction of the muscles which dilate the thorax. When there is effusion the dyspnœa is *generally* proportionate to the quantity of the effused fluid, we say *generally*, for there are some exceptions to this rule.

The cough characteristic of pleurisy, is short, catching as it were, dry or accompanied with a thin mucous expectoration.—Should the sputa assume more consistence and other different appearance, we may suspect complication, as of pneumonia and bronchitis, or a rare case, the opening of the pleuritic effusion into the bronchiæ.

Among the physical signs we notice the altered conformation of the thorax. The side in which the effusion has taken place is full and more prominent than the opposite one; this enlargement, however, is seldom more than an inch and a half. The ribs and cartilages preserve their relative position, as they would during a full inspiration; the intercostal spaces are increased, protruded beyond the ribs, and allow of a fluctuation being felt within. It is well to observe also that we may have considerable effusion with little or no external dilitation, since the lungs may become compressed to almost embryotic size.

Percussion indicates the presence of an effusion, however slight, in the thoracic cavity, by a diminished resonance on the side diseased. At first the dulness of sound is heard only at the lower part, but afterward over the whole of the affected side. The signs furnished by auscultation in pleurisy are generally satisfactory in diagnosis; as soon as effusion takes place, the respiratory murmur is heard less distinctly on the affected side, and in proportion as the effusion increases this sound becomes more and more feeble, while on the other side it acquires unusual force. If the effusion is very great, the respiratory sound is lost entirely in every part of the chest.

The resonance of the voice is singularly modified in those persons, whose chests are the seat of pleuritic effusion. The ear applied to the chest on the diseased side, at this time, is sensible to a quality of voice, which resembles the bleating of a goat, and which for this reason has been called by Lænnec œgophony. Often in place of this bleating, it is a quivering, thrilling, cracked and discordant sound.

M. Regnaud points out another easily recognized sign of pleuritic effusion. It is the absence of vibrations of the parieties of the thorax, when the hand is placed upon it, during the time the patient speaks.

As soon as even a slight amount of effusion commences in the pleura, it is announced by a diminution of the hollow sound which percussion elicits in the healthy state. In proportion as the effusion becomes more considerable, the chest, when struck, gives a

sound more and more dull. At first, this flat sound is rendered opposite the lowermost, depending part only of the cavity; and this forms one ground of distinction between the dulness on percussion in pleurisy, and in pneumonia. However, at length, the effusion augmenting, the dead flat sound may proceed from the whole of the affected side; and this forms another ground of distinction; for it is very seldom that the whole lung becomes so solid in pneumonia as to yield a uniform dead sound over the whole of one side of the chest. Either the dull sound is universal on one side, or it is not. If universal, it is not likely to be the result of solidification by pneumonia, or by tubercles; if not universal, the dull sound will (except in some rare cases) shift its place as the patient alters his posture.

Another ground of diagnosis, which may be of great assistance when the case is seen from the beginning. The dullness comes on much more quickly in pleurisy than in pneumonia. It has been noticed within twelve hours from the invasion of the disease. In living animals, a considerable quantity of serous effusion has often been very rapidly produced by injecting some slightly irritant matter into the cavity of the pleura. In pneumonia, the dullness is commonly later in its appearance. The induration of the lung is gradual, and so is the pneumonic dullness on percussion; the effusion of serous fluid is early and rapid; and so also is the coming on of the pleuritic dullness. Moreover, pleurisy may displace the mediastinum, and cause the *whole* sternum to give a dull sound. A hepatized lung will render *one-half* only of it dull.

The intensity, or completeness, too, of the dull sound is generally greater in pleurisy than in pneumonia. In two days, or even in twenty-four hours, the whole cavity of the pleura on one side may be filled quite full; and the whole of the corresponding surface of the chest, from its base to its summit, will yield a sound (to use one of Avenbrugger's strong expressions) *tanquam percussi femoris*. It is very uncommon for such total and universal *matite*, as the French call it, to result from inflammation of the lung.

Again, in the outset of the disease, while there is yet little or no effusion, but when the pain is acute, the vesicular breathing is heard more faintly and feebly on the painful side than the other. On that side also the walls of the chest are less forcibly expanded, But percussion, when the pain will permit of its being practised, gives the same sound on each side. It is clear that the sharpness of the pain causes the patient instinctively to expand the chest on that side as little as possible, and consequently the quantity of air

that penetrates the lung in a given time is diminished, and the respiratory murmur is feeble.

As soon as effusion commences, the vesicular rustle is heard still less plainly on the affected side; and in proportion as the fluid increases, that rustle or murmur becomes more faint, and at the same time it becomes more distinct and noisy than natural—*puerile*, in fact—on the sound side. And while the respiratory murmur is disappearing on the diseased side, and the spongy lung is becoming empty of air from the pressure of the augmenting fluid, and the larger bronchi are surrounded by compressed lung and by incompressible liquid, the bronchial sounds begin to be heard, the bronchial voice, the bronchial respiration. But the sounds are not exactly the same as those which are heard in pneumonia. They are modified by the nature of the substances through which they pass. The voice, for example, is still bronchial, still the voice of a person talking into a tube; but it has a superadded character; it is trembling, quivering, thrilling, cracked, discordant.

Pleuritis may be mistaken for acute Rheumatism by the fact that in the latter case, the least touch or pressure causes pain, but such feeling or pressure will not increase the pain in pleuritis. In Rheumatism there is often profuse sweating, but not so in pleuritis. We do not have that general disturbance in Rheumatism which we have in pulmonic diseases.

Pleuritis sometimes becomes a *chronic* affection and may be mistaken for phthisis, for it is frequently attended by no pain or only by obscure pain; and yet the patient has pyrexia, cough and expectoration. He will often become hectic and waste away; the pulse will often become quick and he will die, and on post mortem examination we may find the lungs sound, but a large quantity of pus in the pleura.

Sometimes the affected side of the chest grows large, and if it be the left side in which the disease is situated the heart is pushed to the right, so that it beats on the *right* instead of the left side; pus now forms and it is called empyema, at other times serum fills up the thorax. In chronic pleuritis the dispnœa is not half so great as in the acute form, neither is the breathing so rapid.

Treatment.—In this form of disease we notice that every old school author recommends bleeding, but we remark that this practice should *never*, *in any case* be resorted to, and we shall also reject leeching, cupping and every process that takes away the pabulum of life. We cannot recommend vesication with cantharides and any other irritant, neither any form of mercury, and yet

these are the principal remedial agents in use by Allopathy; instead of these depleting and poisoning agencies, we shall advise such medicines as produce a determination to the surface of the body, without depletion and poisoning.

If the case is an acute one, and the febrile symptoms are severe, a full emetic of Lobelia Inflata is always indicated, and while there remains any dispnœa or cough, the Lobelia must be administered in some form as an expectorant; relaxation and perspiration may be assisted by fomentations to the side; or as an application to the affected side, the following is an excellent preparation:

Take equal parts of Cayenne and brown Lobelia and make them into a paste with lard and beeswax, to which add some camphor, and spread it upon a piece of linen of the proper size and place it over the region of the pain.

We have also found the stimulating liniment, viz: equal parts of tinc. Lobelia, Cayenne and Camphor, with a small quantity of some of the essential oils, such as Sassafras, Wormwood, Cedar, Juniper, Tansey, etc., some two or three of these oils, added to the above tinctures as much as will be cut by the alcohol, this as often as twice a day applied with a flannel moistened with the same, over the side, will afford great relief and keep up the necessary determination to the surface and be infinitely superior to all the blisters or mustard plasters that you can procure. If this liniment should not produce any smarting or heat, let a jug of hot water or some warm application be put to the side.

In milder cases where the symptoms are not so severe, the Composition and (white root,) Asclepius Tub., may be the only stimulant and expectorant necessary. Fomentations of hops after the liniment has been applied will always induce all the external stimulation necessary and relieve the most urgent symptoms.

In all severe cases of Pleurisy we must be careful in administering cathartic medicines. It is best to depend on enemas whenever the system is reduced and the patient is weak, but if there is not great congestion of the lungs and very high febrile excitement, a mild aperient or gentle cathartic may be given. The Leptandrin will be sufficient, or the usual anti-bilious pill used by our Reform Physicians.

The diet should be confined to crust coffee, mucilaginous drinks, such as barley water, slippery elm, oat meal, gruel, custards, &c. Free ventilation of the sick room and frequent changes of bed clothing as well as of body linen. This very simple

treatment has cured many cases which we have had, even after being given up by Allopathy, and where the most violent symptoms have been noticed.

There are yet cases in which the effusion continues and increases, and the side, instead of shrinking, enlarges; the functions of the lung on that side are entirely abolished; nay, the use of the remaining lung is greatly interfered with, by the pushing over of the mediastinum; and the patient is in imminent danger of suffocation. In such cases, whether the effusion has taken place rapidly or slowly—whether the disease has been acute or chronic pleurisy—we must relieve the oppressed lung by *letting the fluid out*—by tapping the thorax; and the sooner that is done, when such a state of things exists, the better.

You will take care to survey the chest narrowly before you plunge a trocar into it. If you see by your eye, and ascertain by measurement, that one side is larger than the other; if the intercostal depressions be effaced on that side; if the whole surface affords a dull sound when percussed; if the side does not move at all, or scarcely moves during respiration; if no vibration can be felt on that side when the patient speaks; if no breathing can be heard in the corresponding lung; if the heart be found beating in an unnatural place, down towards the left hypochondrium, or in the other direction on the right of the sternum; and if, at the same time, the other side of the chest moves freely, sounds resonantly, communicates a thrill to the hand while the patient converses, and is full of *puerile* respiration; then you may be sure that the larger size is distended with fluid.

But it does not follow that you should, therefore, open that side. The propriety of doing so will depend upon circumstances.

That operation ought never to be performed unless the life of the patient is, or seems to be, in jeopardy, from the continued presence of the liquid within the thorax.

To make assurance doubly sure, it is always right, before proceeding to the operation of paracentesis, to adopt the expedient first suggested and used by Dr. Thomas Davies, of trying the chest by means of a grooved needle; making a tentative exploration of the nature of its contents in that manner. The passage of this little instrument—like the dismissal of a pilot balloon—affords information which is useful in guiding the particulars of the subsequent process. It not only ascertains that there really is liquid within the pleura, but it discovers the kind and quality, and exact place, of the liquid. If it be serous, it will flow readily along

the groove, and trickle down the patient's side. If it be puriform and thick, it will not exude so freely, but a drop or two will probably be visible at the external orifice; and when the needle is withdrawn, its groove will be found to contain pus. In the former case, it is possible that there may be no false membranes; in the latter, they are likely to be thick. You would use a larger trocar to evacuate the thicker fluid.

The puncture thus made is quite harmless, and inflicts very trifling pain. Dr. Davies gives this useful piece of advice in respect to the trocar, that its point should be *sharp ;* for otherwise, after the serous membrane has been penetrated, if there happen to be thick tough layers of coagulable lymph, not very closely attached to the costal pleura, they may be driven before the instrument, and so the liquid will not be reached, but the operator will be perplexed and baffled.

TYPHOID PNEUMONIA.

Description and Causes.—The first notice we have of this form of disease, was in the year 1806, and it prevailed as an epidemic more or less under a variety of names in various parts of the country.

In the more violent cases, the patient is violently seized with a very severe chill, accompanied with marked coldness of the surface. It is, according to Dr. Gibbes, frequently denominated the *cold plague.* The head being almost invariably affected, before the pneumonic symptoms are developed, it is often called *head pleurisy.* In the autumn or spring, when, in particular districts of country, it is frequently attended by the symptoms of ordinary billious fevers, it is called *bilious pleurisy.* From the symptoms of prostration by which the disease is so generally attended throughout its whole course, and the rapidity with which the patient sinks in the more violent cases, the term, *typhoid pneumonia,* has become, however, the one by which it is most frequently designated.

In its mode of attack, and the general symptoms by which typhoid pneumonia is ordinarily attended, there is no uniformity. Usually, however, the disease is ushered in by a chill, which is often of great severity and long continuence—the heat of the whole surface being to touch much below the standard of health. The

cold stage is not unfrequently so intense as to destroy the patient before the slightest reaction occurs. Where the disease is violent in its attack, Dr. Gibbes states that the patient may suddenly become cold and pulseless, lethargic, and often insensible without previous complaint; he has known instances in which the patient was found dead, or died within three or four hours after being apparently well.

During the cold stage, the respiration is short and oppressed, and a pain in one or other side of the chest is generally complained of; pain of the head is also present in most cases; and not unfrequently the patients experience severe pains in the back, limbs, and other parts of the body—similar occasionally to those of rheumatism. The muscular strength is greatly prostrated, and there is a sense of general uneasiness and great restlessness. After a period, longer or shorter in different cases, but usually protracted, reaction ensues, and the heat of the surface is restored—it is seldom, however, increased much above the ordinary standard of health. The heat is often unequally diffused over the surface—portions being decidedly hot while the others are comparatively cool. Occasionally, the skin becomes hot, dry and harsh, while, at other times, it is relaxed, cool, and clammy. The pulse, when reaction ensues, becomes somewhat fuller, and more quick and frequent, but in very few cases does it acquire any degree of tension, excepting, perhaps, when the disease attacks young subjects and those who retain some degree of vigor. Most commonly the pulse is soft, or it yields to the slightest pressure. During the febrile stage, the pain, oppression of the chest, and difficulty of respiration are increased, and, very generally, a cough comes on within the first twenty-four hours, by which the pain in the thorax is greatly aggravated. When the cough is attended with expectoration, the pain in the side is considerably relieved, and the oppression of respiration diminished. When, however, the cough continues dry, or the expectoration is slight, all the more serious symptoms become aggravated. The matter expectorated is a thick, tenacious mucus, often tinged with blood, but at other times of an ash or dark brown color. The respiration besides being oppressed is usually hurried and irregular—the patient's spirits are greatly depressed—he often utters deep and heavy sighs, and complains of a sense of weight, or of constriction at the præcordia; he is often affected with nausea, and occasionally with vomiting.

The general predisposing causes are, atmospherical extremes and vicissitudes, especially prolonged cold and moisture; the occa-

sionally predisposing ones are defective food, mental anxiety, or derangements and feebleness of the nervous system, by the prolonged or suddenly increased use of ardent spirits. The aged and the intemperate, and those much exposed to hardships, are the chief sufferers; although, in other instances, disease, rapidly followed by death, came on in young subjects of different habits and constitutions. The most speedily fatal and least manageable complication is that with angina. Endemically, typhoid pneumonia is met with in low marshy districts, during the later winter months; cold and moisture seeming to give rise to pulmonary congestion at this season, with the same readiness that heat and moisture did, during the antecedent autumn, to congestions of the spleen. According to the class of subjects, we may expect, in those countries, and with some slight modifications of temperature, to see bilious pneumonia and typhoid pneumonia. In towns and situations in which a large number of people are congregated, with but limited opportunity of inhaling air, while they are still exposed to its inclemencies, and on whom imperfect alimentation and the use of ardent spirits also exert their effects, we see pneumonia more manifestly of a typhoid character, with gastro-intestinal complications, and attacking subjects of different ages thus circumstanced.

Diagnosis.—Typhoid pneumonia is often masked by the disease with which it may be complicated. Thus, the main evidences of the disease may be those of common gastric or bilious fever; but if attention be paid, more or less dyspnœa and cough may generally be observed. The disease is often, however, extremely insidious in its progress, and is not suspected; the dyspnœa may suddenly become aggravated, the motions of the chest are irregular, and death takes place in a very brief space of time from engorgement of the lungs.

At times, the symptoms are wholly absent, but the physical signs may reveal the true nature of the case. A trifling cough, with or without expectoration, slight dyspnœa, and hurry of breathing may occur; yet the patient may not complain of his chest, although extensive and fatal disease may be present. It has, indeed, been affirmed that, in this disease, the stethoscopist will over and over again detect inflammation of the lung, when there has been no preceding cough, pain, dyspnœa or expectoration.

In this form of pneumonia, extensive engorgement of the lung and solidification often take place most rapidly; but, although, this is the fact, the progress towards resolution is generally exceedingly slow; chronic hepatizations, with or without hectic fever, or a lurk-

ing congestion, may continue for weeks; and although, under appropriate management, the disease may be ultimately removed, atrophy of the lung, with or without ulcerative disease, is often established. In certain cases, months may elapse before the respiratory murmur is heard, and, in many instances, it is never re-established. On the other hand, typhoid pneumonia has been known to cease in a single day, on the supervention of an attack of gastritis or enteritis.

Typhoid pneumonia may terminate in rapid and fatal hepatization, in gangrenous abscess, or it may induce chronic solidification or induration of the lung, which may end in the tubercular condition.

A very common form of the disease under consideration—and which at certain seasons, and in particular districts, is even more prevalent than that to which the appellation typhoid is ordinarily applied—is the one usually known as bilious pleurisy or bilious pneumonia.

In this, the attack commences with symptoms differing but little from those which usually usher in an ordinary case of bilious remittent fever—there is, perhaps, in general, a more severe and protracted chill, and a sense of distress and oppression about the chest, which is not usually observed in the latter disease. Occasionally, the attack is preceded, for a day or two, by a sense of fulness and weight in the right hypochondrium, and, in a few cases, by symptoms of a dysenteric character. Very generally there is severe pain of the back and extremities, and often of the head also. Almost invariably, the attack is acoompanied bp an acute pain of the forehead—well marked febrile symptoms, with usually decided exacerbations in the morning and remissions towards evening.—During the exacerbations the face is flushed, and as the skin, from the commencement of the disease is more or less tinged with bile, the mixture of red and yellow gives to the countenance a very peculiar, sickly aspect. The eyes are red and watery, the conjunctiva having often a deep yellow hue. In many instances, it is only after the fever has continued for several days that pain in the chest is complained of; this is sometimes very severe and acute, more commonly, however, it is obtuse—of an aching rather than of a lancinating character—there is, at the same time, a sense of weight and oppression of the chest, with more or less difficulty of respiration and cough. The cough is at first dry, and its repeated paroxysms cause an increase of the pain in the thorax and head—The expectorated matter is frothy and of a yellowish color, often

streaked with blood, and of variable consistence. The tongue is, at first, coated on its sides with a whitish mucus, while at the centre is covered by a dark-yellow or brownish crust—the edges of the tongue are ordinarily of a decided red. As the disease advances, the tongue becomes dark-brown, dry and hard. The pulse is usually small, frequent and quick, with a slight degree of tension.

The symptoms are those common to pneumonia, with the addition of great dejection of the spirits, and from the beginning, in many cases, a degree of delirium which sinks gradually, as the patient grows worse, into the low muttering characteristic of typhus. As the disease advances, the typhus symptoms become aggravated.

Auscultation apprises us of the crepitant rhonchus, or if the disease is far advanced, bronchial respiration and bronchophony.—In some cases, however, there is no abnormal sound. The disease is sometimes ushered in with sudden increase of prostration and an anxious expression of face and appearance of emaciation. The substances effused in the lungs are but little plastic and of a dirty grey color as if mixed with decomposed blood. The brain, as we learn from Dr. Dickson, is usually more or less altered in appearance, its vessels filled with dark blood, and effusions of serum, of coagulable lymph, and even of purulent-looking fluid, are occasionally found upon the surface of the membrane, in the ventricles, and even, it is said, within the cerebral substance. The blood is, as in typhus, of a particularly blackish hue.

Treatment.—In the treatment of this disease, we must pursue pretty much the same course as we have advised in Pleuritis and Pneumonia. The only difference will consist in combatting the typhoid symptoms. The Lobelia, in its various forms and preparations, must be administered daily and constantly, and often to emesis. No depletive means are indicated here; cathartics should be sparingly used; the leptandrin should be preferred, but the main dependence for evacuations should be on enemas of a stimulating character. A flannel, wet with stimulating liniment should be kept at the chest and bowels. Let the whole surface be bathed once or twice a day, with some alkaline bath, tepid and sometimes stimulating; mucilaginous drinks should be freely used.

Particular attention should be paid to cleanliness and ventillation. The following treatment by C. Pickett, M. D., of Alabama, is thorough, and to be commended for typhoid complaints:

Being called to a case of Typhoid Pneumonia: if the stomach is foul or seems oppressed with a dirty sort of nausea, and the pa-

tient can vomit tolerably easy, it will be well enough to give an emetic of a mild nature, in warm sage, weak composition, or some other kind of bland tea. Vomit two or three times to remove morbid matter, and then stop. If the brain was threatened with congestion, I would not vomit my patient unless there was clearly a very great necessity for it, and I was pretty sure he would vomit easy, and not strain and force the blood to the head. After the emetic, give three or four grains of leptandrin in a pill or in a little syrup or jelly, and if it does not act in eight or ten hours, give one grain more in the same way, and use enemas every two or three hours until they act mildly, so as to have an alterative effect on the liver, and act as a gentle evacuent of morbid irritating matter; and this dose can be used every four or five days if the stools do not show a reasonable portion of bile, or the mouth continues dry, but perhaps only in half the above dose on ordinary constitutions after the first, relying on the syringe in the interval to move the bowels, provided they are necessary. After the first three or four evacuations by stool, about two or three stools in twenty-four hours, on an average, will be sufficient; and with patients whose bowels in health did not move more than once in two or three days, one stool in twenty-four hours will generally do. When the stools are of a natural color, and not offensive, the habits of the patient should be consulted as to the number of evacuations in a given time. If there is pain or soreness in the chest, or in the abdomen, as in Typhoid fever, or a difficulty of breathing, owing to a tendency to congestion of the lungs, or a want of power to move the respiratory organs easy, put mustard over the affected part and burn it freely, but not to a blister; then rub or mop something stimulant over the surface of the part affected, such as Tinc. of Cayenne, 3d Preparation, etc., so as to keep up a constant excitement over the part until the symptoms disappear, but to be resumed if they return. Keep the feet warm and head tolerably cool, but not cold enough to prevent perspiration. For the dry mouth, (tongue,) Balsam of Fur has no superior, given in one-fourth to one-third tea-spoonful doses mixed well in syrup or jelly, but not in honey, every six or eight hours, provided it does not nauseate the stomach or act too much as a laxative in that size dose. It is to be continued until the mouth gets moist and the soreness is all gone, to be resumed when the symptoms for which it is given return. It is a fine alterative to the mucous membrane of the lungs and bowels, and will be found far superior to any other sylagogue now in general use, and better in every respect than the

spirits of turpentine, for it is not so irritating as the turpentine.—Tallow cloths to the sore or painful parts in the intervals between the use of the mustard plasters and liniment, and if necessary a little spirits of turpentine put with the warm tallow is good to take out soreness. But the turpentine is to be left out, if it produces a kind of pungent tightness of the surface to which it is applied. Balsam of fir acts as an expectorant in these cases.

To produce perspiration, to stimulate the system, to counteract the putrid tendency of the disease, to heal ulcers in the bowels, if there are any, I give composition powders, I make a pretty strong tea and give it about every two hours, sweetened to the taste of patient with loaf or brown sugar. I give generally about a wine glass full luke warm, but if the patient is asleep and it is not necessary to stimulate him to keep his pulse regular, I allow them to go longer without a dose, until they wake. The astringency of the Bayberry increases the coagulating power in the blood and nervous matter, thus counteracting the tendency to decomposition, while it heals ulcers, if there is any. The Ginger, Cayenne and Cloves act on the skin and equalize the circulation, also prevent any tendency to congestion, also stop griping, help to restore nervous power, and give general strength to the system. Bayberry being an astringent stimulant and tonic acts on the putrid fluids, solids and gasses somewhat like tan bark on hides, but is kept in check by vitality, and not being strong enough to tan the system it is an admirable remedy, given in such company as Ginger, Cayenne and Cloves. We use Slippery Elm mucilage or Gum Arabic as a drink all the time, cold, to furnish the blood with good soothing material; also to prevent the stimulants from acting as irritants. We sometimes use sage tea, when there is no particular sinking of the system, but have composition given six or eight times in a day and night. The tea can be taken cold if there is no particular fever or sinking. Parched rice or parched corn water, made by beating the rice or corn, after it is parched dark brown, to a coarse powder, and then pouring cold water on it, is good for an ordinary drink. It is better than ordinary crust toast if the rice or corn is cool when the cold water is put to it, and will be strengthening.

If the patient is nervous much, put Valerian with the composition, but the composition must not be diminished in quantity. The same can be said of pleurisy root when there is a desire to augment the expectorant property of the medicine.

For nervous delirium there is nothing superior to strong compo

sition tea with about one-third valerian, and keeping the head cool and the feet warm, and the room dark, cool and quiet. For the heat and dryness of the skin we use luke warm water as a wash to the arms and legs, and every day or two we sponge them all over. But if the skin continues harsh and dry we use a little soap or saleratus in it to soften, but not strong enough to irritate the skin. It soothes, relaxes, and invites perspiration.

As an expectorant there is a number of good ones. Small doses of equal parts of the Tr. of Lobelia herb, No. 6, and honey, so as to slightly nauseate the stomach, every two or three hours is a good remedy. But if the pulse is soft, there is no necessity for the nausea. And if it is irregular the patient ought not to be nauseated. So with a soft or irregular pulse we use No. 6 and sugar, or some kind of sweet expectorant, inhaling warm water steam, luke warm vinegar fumes, &c., but not to be used to an extent to worry the patient. By all means allow no unnecessary talking on the part of the patient to visitors. Let the nurse answer the questions of visitors, and not the patient. Allow but few in the patient's room at a time; but above all things keep "gossips" away out of the house too, if you reasonably can, for they often create a want of confidence in the physician, meddle with his prescriptions, &c., &c., and do much harm. They ought to be controlled or put out of the house. After the mouth gets moist and the pulse soft, you can usually put out three or four doses of sulphate of quinine, say of five grains each, to be taken made in pills or put in strong cold coffee, every two or three hours, until the head shows its effects slightly. After that from one to one and a half grains will be enough for a dose every four to six hours, until the patient is clear of every thing like feverishness. If the small doses affect the head they must be reduced. Composition tea is to be used cold, at this stage; at and between the doses of Quinine, V. Snake root, Bone set, &c., are sometimes used in this and sometimes in the early stages of Typhoid disease. But they are worse to take and they are generally inferior to composition.

At any stage of the disease, if the head is not much affected, if the patient begins to sink rapidly, good Port or Madeira wine, or a fine article of brandy can be used to stimulate the system until you can get the other stimulants to act. Brandy and wine are to be used irregular, only to act until other medicines can be got to act. On some constitutions, it is right to say, that after the fever is entirely broke, wine or brandy acts as a fine tonic. When the liver is much diseased, experience has seemed to prove to us

that a real good article of Madeira wine acts the best after the disease is broke up and the bowelsare not predisposed to diarrhœa.

After the fever is entirely subdued, tonics can be used to advantage. But if for fear of the patient's sinking, they are commenced too soon, they will often keep up a slow irritability of the system a good while, and sometimes produce a relapse, even when they are not suspected of being the cause. Use cold composition, tea sweetened, or some other kind of febrifuge tonic, until all doubt is removed. Watch the stools, more particularly after using quinine, and if the liver does not act healthy, use an alterative dose or two of Leptandrin. Diet ought to be simple, nourishing and easy of digestion, such as rice, soup, gruel, chicken or bird soup, ham soup made of the lean part of the ham, arrow root, etc.

Charcoal of a fine quality can sometimes be used to advantage in moderate doses when the stools are oppressive or the tongue red, showing irritability with too much acid.

The delirium of typhoid disease depends more frequently on prostration than any other cause, and shows itself mostly towards the close of a fatal case. Sometimes it seems to be caused by a disease of the brain. These are the cases that are so often killed with opium, laudanum, morphine, cupping glasses, leaches, blisters, gelsemin, veratrum viride, etc., seemingly under the notion that there is too much power in the nervous system, and that it must be blunted and prostrated, or that the arterial action is too high, and that it has to be reduced by local depletion, when in truth, even admitting the brain to be the seat of the disease, we can accomplish all that is necessary by keeping the head cool with cold water, the room quiet, tolerably cool and dark, while the extremities are kept warm with warm rocks, stimulants, and while the circulation is equalized with composition tea, made pretty strong, Number Six, ginger tea made strong.

I have said that veratrum viride, gelsemin, cupping glasses, etc., are used "seemingly" under the notion that there is too much power, etc. I am aware, and so is the reader no doubt aware of what some pretend to believe, but it is no uncommon thing for people in our days to declare war against the devil and then practice sin by the wholesale. Gum camphor acts well on the skin, and in some cases as a nervine, but it should be used with caution on account of its tendency to affect the head.

Chloroform alone, or combined with Camphor water and Tr. Valerian is a humbug, when given in typhoid delirium or subsultus tendinum in this disease, though it might act well in purely

nervous spasm, as in hysterics, etc. We have seen the effects of chloroform in such cases, and speak knowingly. It is true it seems to do good for a short time, but the truth is, it does no good at all in typhoid disease, but real harm. Pepper and brandy ought not be used on a dry hot surface.

A tongue cleaving in patches shows ulceration of the bowels. A dark, flabby, wrinkled, or wet corduroy looking tongue shows great prostration, and when anything of the kind is seen, the physician had better keep a sharp eye out to his strong composition tea with enough of good Port wine to keep his patient's pulse up, or he will die before he expects it.

When the bowels puff use mustard and strong stimulants to them freely. The reason we condemn the use of pepper and brandy or pepper and vinegar to a hot dry surface is, that it raises the outward heat above the inward heat, thus tends to destroy the natural balance of power in the system, prostrate and produce congestion by over heat on the principle of an over heat in the sunshine, etc.

HÆMOPTYSIS—PULMONARY HEMORRHAGE.

Description and Causes.—This term Hemoptysis (from the Greek αιμα blood and πτυω to spit,) is applied to any discharge of blood from the lungs, especially from the mucous membranes of the air cells, the larynx, the trachæ or bronchæ.

This hemorrhage may proceed from the mucous membrane of the air-*passages*, or from the air-*cells*. In the one instance, it is not necessarily a dangerous disease; in the other it is highly dangerous, in as far as it is likely to be very profuse. The greater number of cases of hemorrhage from the air-*passages*, arise simply from an effusion of blood from the mucous membrane of the bronchial tubes. The blood which is spit up is florid—generally of a bright scarlet color; and is frothy. It is spit up with a tickling in the throat; the pulse is quick; and there is heat in the chest. This is the description of hemorrage, which takes place most frequently in young adults between the age of puberty, and the full adult period of five-and-thirty. It occurs, particularly, in that period during which the chest expands—in which we "spread," as they say. The first part of life is disposed to hemorrhage from

the *nostrils;* the second to hemorrhage from the *lungs;* and the third to hemorrhage from the *abdomen.*

This species of hemorrhage occurs more particularly in those persons disposed to consumption; with a fine soft skin, soft hair, and a sanguineous temperament; and, among these, it occurs more particularly in those who have a florid color. The disease sometimes occurs where there is hardly anything particular to be perceived about the individual; and sometimes it occurs in those, in whom there appears to be great strength of system. It is produced by all the causes of inflammation. A blow on the chest, or catching cold, will give rise to it; but it very often takes place without any observable exciting cause. Violent exercise, and excitement of mind or body in any way, will occasionally produce it; but sometimes it occurs without any apparent cause.

It will return at certain periods—at intervals of a month or a twelvemonth; and at last it will cease altogether; and the patient will then become the subject of consumption. It is very common for consumption to take place in patients who have had several attacks of hæmoptysis; but this is not a necessary occurrence.

The blood, in pulmonary, as in all other hemorrhages, may issue through a breach in the walls of some considerable blood-vessel; or it may proceed from innumerable points in the mucous membrane of the lungs, by the process of exhalation: and the latter mode of hemorrhage is much the more common of the two, although it is the popular belief that the "breaking a blood-vessel in the lungs" is of very frequent occurrence.

The particular vessels injured in the first class of cases, and the nature of the breach made in their sides, are matters of infinite variety. Sometimes the blood is extravasated through apertures, the results of a disorganizing process which has commenced in the coats of the vessels themselves; as when, for example, aneurisms of the thoracic aorta, or of its primary divisions, bursts and pours their contents into the air tubes.

Cæteris paribus, the *disposition* to pulmonary hemorrhage is increased by whatever tends to diminish the capacity of the thorax, and to compress the lungs, or the heart and great blood-vessels.—The mechanical congestion thus produced may become a very intelligible cause of the exhalation of blood from the mucous membrane. And it is partly on this principle that we may account for the frequency of hæmoptysis in persons with crooked spines; in tailors, who sit continually in a stooping posture: in young women who lace their stays too tightly; and even in those who labor under

dropsy, or other cause of distension of the belly. Hæmoptysis accompanying ascites has been known to cease at once upon the performance of the operation of tapping, and to recur upon the re-accumulation of the dropsical fluid; and this is not on one occasion only, but so often and regularly as to preclude all notion of accidental co-incidence. There can be little doubt, however, that in this class of cases, or at least in a vast majority of them, the hæmoptysis is mainly to be ascribed to organic disease of the heart or of the lungs; and that the pressure which precedes and determines the bleeding is simply a *concurrent* cause.

The predisposing causes of hæmoptysis are numerous; the phthisical habit—and any organization, in which the vessels are loosely protected by the parts in which they creep, offer a predisposition. This is apt to be the case in that organization, which has been esteemed markedly strumous, in which the hair is fair, the eyes blue, and the pulse rapid. Age is, likewise, a predisposition. In infancy and advanced life, the disease is rare; but soon after puberty, when, owing to the different evolution of organs, the disposition to epistaxis has ceased, the tendency is much greater; and again, after the age of thirty-five, when the evolution takes place that favors cerebral hemorrhage, the liability to hæmoptysis is greatly lessened. Between the ages of fifteen and forty, may be regarded as the period most subject to the disease.

Women, it is affirmed, are more liable to the affection than men. Any sudden changes of atmospheric pressure may, likewise, have some influence; that is, a change from a denser to a rarer condition, provided it be considerable. We might suppose, therefore, that persons, who live in elevated regions; as on the mountains of South America and Thibet, would be subject to hæmoptysis. The system soon, however, becomes accustomed to the altered circumstances, and we have no reason for believing, that, ultimately, such persons are more liable to hæmoptysis and other affections of the pulmonary apparatus, than those who reside on the level of the ocean.

The exciting causes are very numerous. Any violent corporeal exertion, either of the lungs or of the body generally, may induce it, especially if any of the predisponent influences, already described, are in action; or if their is either vascular fulness, or mechanical impediment to the circulation, owing to the presence of tubercles in the lungs. Dunglison says, one of the most severe cases of hœmoptysis, which he attended, occurred in the act of sexual intercourse.

In the advanced stages of pulmonary consumption, hæmoptysis may be a symptom of the existence of abscess in the lungs.

The inhalation of fine mechanical particles, borne about in the air, in certain occupations, or of acrid vapours, may also be an exciting cause.

The most important considerations connected with hæmoptysis are those which relate to its predisposing and exciting causes; for by these we are to form our judgment of the probable termination of the disease, and be in a great measure guided in our method of treatment. The simple rupture of a blood-vessel in the lungs, from fullness of blood and increased action, either within the chest, or throughout the body, independent of any peculiarity of structure, has sometimes been observed, but it is unquestionably a rare occurrence; and this must surely be a matter of surprise, when we reflect how numerous and how large the blood-vessels of the lungs are, and by what a very delicate membrane they are covered and supported. Under such circumstances, however, hæmorrhagy may occur from the lungs, as from the vessels of the Schneiderian membrane. By rest and low diet, the ruptured vessels would soon heal, without any further bad consequence.

The second predisposing cause of hæmoptysis, is *scrofulous diathesis*, or that habit which is marked, among other peculiarities, by a general delicacy of structure throughout the body—light and thin hair, a smooth and soft skin, a lax muscular fibre and slender form. Of this delicacy of structure the blood-vessels appear to partake; and consequently a disposition to *hemorrhagy* becomes also a character of scrofula. That it should particularly appear in the lungs, might be conjectured from what has just been stated; but a further disposition in such a habit of body to this form of hemorrhagy is given by *tubercle*. It is necessary, however, to add, that weakness of the vessels of the lungs, disposing them to rupture, is often met with independent of scrofula. Hence it happens that some persons spit blood from any cause that weakens the body generally.

The third circumstance giving a predisposition to hæmoptysis is *period of life*. It rarely happens to children under the age of twelve years, and is not frequent after that of five-and-thirty. It chiefly prevails between the ages of fifteen and twenty-five. Pathologists have attempted in several ways to explain this circumstance. It has been said to depend upon the growth of the thorax continuing, after other parts of the body have been fully evolved, manifested by the increased width which the chest acquires at that

period of life. Dr. Cullen has imputed it, in part at least, to a want of due balance between the aortic and pulmonary systems, which must chiefly be felt at that age, when the former has arrived at its utmost extension and resistance. To whatever cause it is to be ascribed, there can be no question as to the general correctness of the position, that this particular period of life gives a remarkable predisposition to hemorrhagy from the lungs.

The fourth predisposing cause of hæmoptysis is *mal-formation of the chest*, which obviously acts by preventing the due expansion of the lungs. Persons who have suffered in early life from rickets, or tight lacing, to such an extent as to affect the spine or ribs, are very liable at another age to hæmoptysis. The scrofulous habit of body is characterized by prominent shoulders, and a narrow chest; and this is one among other reasons, why the scrofulous diathesis is so frequently accompanied by a tendency to hæmoptysis, upon all occasions which impel the blood with any degree of increased impetus upon the vessels of the lungs—in other words, upon the application of the *exciting* causes. These are very numerous, some acting more immediately upon the lungs, and some indirectly through the medium of the general system.

Among the exciting causes of hæmoptysis, which act directly upon the weakened blood-vessels, the most important are external injuries; violent exercise of the whole body, as in running, or wrestling; or of the lungs in particular, as in loud or long speaking, playing on wind instruments, or glass blowing. Those which act indirectly are full living, and particularly the free use of wine; alternations of atmospheric temperature, and, as some allege, of atmospheric pressure; sudden exposure to cold after being over-heated; the suppression of usual evacuations; and apparently, in some cases, the amputation of a limb.

In a large proportion of cases, however, hemorrhagy from the lungs is but a symptomatic affection; and the prognosis, therefore, merges in that of *consumption*. The connexion that subsists between these two diseases, hæmoptysis and tubercular phthisis, is, in a practical point of view of the highest importance. The subject will be more formally noticed when treating of consumption.

Diagnosis.—An attack of hæmoptysis is commonly preceded by more or less indisposition, and especially by a sense of weight, or heat, or an indescribable feeling of uneasiness about the chest, with oppression in the breathing and cough—signs indicating hyperæmia or congestion of the lungs—and a sweetish taste, or the taste of blood in the mouth. With these local, are commonly

associated general symptoms; the extremities and surface of the body are cool; irregular chills are experienced, especially in the back; the face is alternately pale and flushed, and there is palpitation, with an accelerated, and at times vibratory, full and hard pulse. A distressing sense of ebulition is also experienced in the chest, which is a certain sign of blood being effused into the bronchial divisions.

The constraint in respiration augments, and a sense of tickling and pricking is referred to the bifurcation of the bronchia. The expectoration of mucus, streaked with blood, or of pure blood in greater or less quantity, now commences; and when the blood is examined, it is found to be of a florid vermillion color, and frothy; unless it has remained some time in the bronchia, when it may be black. Such is the case, when the exudation of blood is ceasing; the portions which transude, instead of being thrown off immediately, may remain there for hours, and be ultimately expectorated of a very dark color. Cases have been often seen, where extraordinary quantities of blood have been discharged; and the patient has sunk immediately—but they are rare.

The expectoration resembles red currant jelly; but, at times, is not so much tinged; the quantity of blood evacuated varies; it is sometimes so great, that it almost amounts to vomiting—mouthful after mouthful being expectorated; the feelings of indisposition then gradually cease, but they may recur, and be followed by a similar hemorrhage. The quantity lost is, at times, astonishing, especially when it is vicarious, as in cases of suppression of the catamenia; in these cases, it may return monthly.

After a copious discharge, cough usually continues with the expectoration of a slight quantity of dark liquid, or coagulated blood, which comes gradually.

When the chest is percussed, it emits its natural sound, because the blood is expectorated as fast as it transudes: for the same reason, on auscultation, no sound can be heard except the mucous *rale* with large bubbles, (*rale muqueux a grosses bulles.*)

Difficulty may occasionally arise in discriminating the blood of hæmoptysis, from that of hæmatemesis and epistaxis. In the last disease, the blood may flow by the posterior nares into the pharynx, and be expectorated along with the mucus of those parts. The color of the blood is strikingly different, however, from that of active hæmoptysis; it is never florid or frothy, as in the latter disease. The blood of hæmoptysis may be distinguished from that of hæmatemesis by the same signs, as well as by the accompany-

ing symptoms. In the former disease, as we have seen, there is cough and dyspnœa; in the latter, nausea, weight at the epigastrium, and vomiting: on inspection, too, the blood evacuated may be found mixed with the contents of the stomach or small intestine.

The blood in hæmoptysis may proceed from the rupture of an aneurism of the aorta; but, in such case, there is not much time for doubt, as the case speedily terminates fatally.

As it very rarely happens that hæmoptysis is a primary disease, and as it is almost always symptomatic of some internal lesion, it becomes important to determine the nature of such lesion, and especially, whether it consist in deposition of tubercles. In the latter case, the prognosis merges in that of phthtsis pulmonalis, and the existence of tuberculosis must be determined by the signs and symptoms to be hereafter described.

Even where tubercles are not present, it may lay the foundation for them in one predisposed to them. It has been affirmed by a distinguished pathologist, that he has found less than one-fifth of those, who have labored under hæmoptysis, exhibit tubercles on dissection. There are many, again, who have been hæmoptoic in their youth, who have attained a good old age, remaining delicate for a longer or shorter period, or entirely recovering. It is unquestionable, however, that in the majority of cases, hæmoptysis is, either preceded or followed by phthisis pulmonalis.

The employment of the ear, in addition to the general sympoms, may be useful in this disease. It is always desirable, when a person spits blood, to know how much disease exists in the lungs; and it is desirable to know whether the blood comes from the bronchial membrane, or is the consequence of such a state of the air-cells as we have noticed, because the latter form of hæmoptysis is far less manageable than the former. In this kind of hæmoptysis (called "pulmonary apoplexy,") when only a little effusion has taken place, there is a crepitous rattle; but in hæmoptysis from the air-tubes, there is not; and for this reason—the blood is not in the air-cells. When it is in the *tubes*, we have no crepitous rattle; for that always arises from an accumulation of some kind or other in the cells. In effusion of blood in the air-cells, we have crepitous rattle *at first;* but where the blood is more *abundantly* effused, we cannot have crepitous rattle; because no air can be admitted. The crepitous rattle, arises from the air passing through the fluid; and from the air-bubbles bursting one after the other. When so much blood is effused into the different air-cells, that no air can be admitted into them, and the part becomes firm, there is no cre-

pitous rattle; nor, indeed, any rattle at all. No respiratory murmur, and no morbid respiration is heard; for no respiration can take place long in the part. All that can be detected by the ear is, that the part is not healthy. On striking over the part, it sounds dead; and on listening, there is no sound of respiration; and we learn very well, by the ear, what is the extent of the mischief.

We may ascertain how much of the lung is solidified, by the extent of *dead*, instead of *hollow* sound, on percussion; and the extent to which there is no respiratory murmur. With regard to the *treatment*, that must be the same, whether the blood come from *one* part or from *another;* and therefore it must be for the sake of the *prognosis* that we employ the ear, and make a distinction between the two cases—the one being a manageable kind of affection and the other extremely unmanageable.

Treatment.—Instead of resorting to the poisonous mineral astringents, such as the acetate of lead, etc. We have always found that our vegetable astringents are preferable. Again, we have found that Cayenne, or our Composition, is one of the best articles to use, since the stimulation it affords the system at once equalizes the circulation and thus removes congestion.

The propriety of this treatment is questioned by the Old School physicians, but the tendency of it is, to restore a balance to the circulation, and thereby counteract the determination of blood to the lungs. This gives an opportunity for a coagulum to form around the ruptured or bleeding vessels, and the hemorrhage will then cease. The stimulants, injections, vapor bath and emetic, all tend to recall the blood from the lungs, and to distribute it to other parts or organs where there is a deficiency, and surely there is nothing hazardous or unphilosophical in this mode of treatment. At all events, it affords prompt relief in all curable cases, and that too without the loss of blood by the lancet, which debilitates the system, and often ruins the constitution.

After hemorrhage is checked, the patient should be kept in a gentle perspiration for several hours by the use of composition tea. He should then adopt the appropriate means of reinstating his health, such as living temperately, keeping his feet warm and dry, rubbing his skin night and morning with a coarse towel or flesh brush, exercising in the open air, and making use of the ordinary stimulants and tonics according to the circumstances of the case. Where the hemorrhage is symptomatic of consumption, the case demands very close attention, and no pains should be spared by

the patient to invigorate his constitution, and restore his lungs to a sound and healthy condition.

The most prompt measures should be as speedily applied as possible, to check the effusion of blood. When the spitting of blood takes place in warm and relaxing weather, the pulse weak, and the ordinary evidences of febrile excitement wanting, we may reasonably presume that the rupture of the blood-vessel has been owing to relaxation and debility. Under such circumstances, the best astringent tonics should be advised. The patient may be directed to take any of the vegetable astringents, combined with golden seal, poplar, and nerve powder, either in decoction or substance, or these combinations may be given in a little Port wine two or three times daily.

After the effusion is stopped, we are to use every possible means to prevent its return. The best tonics should be continued; quietude and gentle diet recommended. Large portions of common salt will sometimes check hemorrhage from the lungs, particularly when the bleeding is very profuse. Equal parts of composition and capsicum, are also considered a very excellent remedy in checking this variety of hemorrhage.

The nature of the occasional cause should be particularly kept in view in regulating the treatment of hemorrhage, and especially for the prevention of its recurrence.

When this malady is occasioned by some violent wrench or strain, without the existence of a constitutional predisposition, recourse should be had immediately to thorough courses of medicine, as the most prompt and effectual means of establishing a perfect cure.

Spitting or vomiting blood not unfrequently occurs in females from a suppression of the monthly discharge—and when this is the case, it shows itself more particularly at the periodical times she should be unwell. The complaint is then attended with cough and other pulmonary indications. In cases of this kind the appropriate remedies should be resorted to for the relief of the primary disease.

The Oil of Erigeron, has been very successful in checking hemorrhage, a few drops, (from four to ten, or more,) on sugar every ten minutes till relief is obtained.

When hæmoptysis assumes a chronic character, we must give constitutional treatment, and all customary means of giving tone to the system without any special strain upon the lungs should be had recourse to, good air, plain nutriment, moderate exercise, tepid

bath at first, and after awhile if reaction be sufficient, the cold bath, frictions and great attention to preserving the feet warm and dry; are all hygeanic means of the utmost importance and should be rigidly enjoined by the Physician.

A strong decoction of the Lycopus Virginicus, (Bugle weed,) taken cold may be freely drank when the hemorrhage has subsided and it will prevent its recurrence.

PULMONARY EMPHYSEMA, DILATATION OF THE AIR CELLS OF THE LUNGS.

Description and Causes.—By the term Emphysema, our authors describe two forms of lesion in the lungs, viz: a dilatation of the air cells, and a rupture of the partition which separates them from each other, and we may also add the infiltration of air into the interlobular areolar tissue of the lung. This last lesion is strictly emphysema, but we shall describe the other forms under this head.

Vesicular emphysema consists in dilatation of the air-cells.—The enlarged cells become misshapen in many cases. They vary in magnitude from that of a millet-seed to that of a swan-shot: nay, the cavities may even reach the size of a nutmeg, or a hen's egg: but when they are as big as this—and *a fortiori* if they are still bigger—the distension and vacuity are, no doubt, the result of the union of several air-cells, broken into one, by the stretching or destruction of the partitions that naturally divide and isolate them. You may see the dilated vesicles very plainly through the pleura, if you carefully examine the surface of the lung. They appear to the naked eye as the healthy vesicles appear when seen through a magnifying-glass. Sometimes all the vesicles belonging to one lobule are enlarged, while those of the adjoining lobules are of the natural size. In that case, the emphysematous lobule is conspicuous both by its peculiar color, and by its protrusion. The surface of the lung is often rendered quite irregular and uneven by projections of this kind. Sometimes one large globular prominence is seen, like a bubble on the water, or like a little bladder springing from a footstalk; but if you examine it closely, you will generally find that the footstalk is merely a constriction at the surface, and that there is as large a cavity beyond it, in the lung,

as there is without. These bullæ you cannot slip about by pressure from one part of the pleura to another.

Lænnec attributes the dilation of the air-cells, in the first instance, to what he terms *dry catarrh*, which is characterized by its tendency to recur, and by the expectoration of small pieces of hard, pearly phlegm. But doubtless the disorder may be produced, and aggravated when produced, by any cause that impedes the free exit of the air from the lungs during expiration: by blowing on wind instruments of music, by pressure made on parts of the lung; by tumours in the thorax, a large heart, aneurism of the thoracic aorta, deformity of the chest from crookedness of the spine, tight lacing, and even the presence of tubercles; although lungs that that are full of tubercles are not, in general, much affected by emphysema. This last fact has led to the absurd project of attempting to prevent phthisis by producing emphysema. It is the same disease which exists in broken-winded horses.

There is this material difference between vesicular and interlobular emphysema; that the one is slow and gradual in its formation, the other sudden. The permanent dilatation of the air-vesicles is the work of time. They yield, and lose their elasticity, and break into one another by degrees. The interlobular effusion of air may be effected in a few minutes or seconds. It is caused by *violent* straining efforts; such as those made by a woman in childbirth, or by any one who exerts himself to lift a weight which is too much for him. A deep inspiration is taken; then the glottis is voluntarily closed, and a strong expiratory effort is made.—Some rupture must take place and form a communication between the air-vesicles and the areolar tissure; but such rupture has never been *traced*, nor is it likely that it should be.

The interstitial areolar tissue of the lungs, as well as the air-cells are liable to be filled not only with air, but with serous fluid; and this constitutes *œdema of the lungs;* a condition which is by no means uncommon, and one of which you ought therefore to be aware; but it need not long occupy our attention at present.—When a lung, or a portion of a lung, is anasarcous (and you will often find that the œdema is limited to the most depending part of those organs), it is generally of a pale gray or yellowish tint; is heavier than healthy lung, and less crepitant; and pits more on pressure—is *doughy*. And if the œdema is extensive, the lung does not collapse when the chest is laid open. When incisions are made into the lung in this state, a thin watery fluid flows out, more or less spumous; and if the lung be well squeezed, the whole

of the liquid may be expressed; and then it will be obvious that the texture of the organ is sound, but that it had previously contained less air than usual, in consequence of the presence of the watery fluid.

This condition of the lung seldom takes place except as a part of general anasarca: and we may discover its existence, first by noticing that there is dropsy of the areolar tissue in other parts; secondly, that the patient has dyspnœa; and thirdly, by hearing crepitation, produced by large bubbles, at the lowermost portions only of the lungs. In those portions the liquid gravitates; just as it sinks into the ankles when the patient sits up or walks about. There is still air in the œdematous portions; so that percussion still gives a hollow sound; as hollow at least on the one side as on the other. With the air there is also liquid, which transudes, from the areolar tissue, or is exhaled from the surface of the membrane: and the liquid is from time to time coughed up and expectorated. Sometimes, however, there is but little expectoration. What does come up is chiefly aqueous, with occasionally a piece or two of mucus floating upon it; and it is somewhat foamy also.

With regard to the causes of vesicular emphysema, it has been already remarked, that it probably is not always dependent upon bronchitis, as it is believed by some; the same may be said of pneumonia, as a cause, notwithstanding it is accompanied by dilatation of the vesicles. The immediate cause of the dilatation we are unable to appreciate; nor is it explained by the assertion, that both in this form of dilatation, and in that of the larger bronchial tubes, "we must admit, at least in a great number of cases, a force analogous to that, which presides over the extension of hollow organs, and in virtue of which these latter enlarge, without our being able to account for it by means of any obstacle or mechanical cause."

A recent writer ascribes it to a want of elasticity in the lung, or, in other words, to absence of its natural tendency to collapse. The powerful muscles of inspiration are continually acting to dilate the chest, and thence, by virtue of atmospheric pressure, the air-cells. "This agency is not counteracted as it should be by the natural elasticity of the lung, and the air-cells, as well as the cavity of the chest, are, in consequence, permanently dilated."

Diagnosis.—One of the best descriptions of this disease, is that by Louis. It is a disease unattended by fever, and of long

duration, commencing frequently in early youth, and very rarely after fifty years of age. The first symptom is slight dyspnœa, which generally continues, without aggravation, for a number of years, when it dates from infancy ; and afterwards becomes more and more marked, occurring in paroxysms, during which the patient appears at times to be threatened with suffocation. The dyspnœa is often preceded by cough, and is almost always accompanied at some period or other of its course by bronchitis, which, when aggravated, would seem to be one of the most common causes of the paroxysm of dyspnœa. The disease is, indeed, considered by some to be the result of bronchitis,—the mucous secretion of which cannot be readily expectorated, and therefore dilates the vesicles ; but this is denied.

Connected with the symptoms above described is an alteration of the form of the chest, generally of limited extent, implicating both the ribs and intercostal spaces, and the common seat of which is the anterior part of the thorax, and the supra-clavicular regions. The shoulders are elevated and brought forward, and the patient stoops habitually, owing to the relief which he has found from bending the body forwards. To such an extent does the habit of stooping alter the configuration of the chest, that the acromial, interscapular, supraspinous and subspinous surfaces may become nearly horizontal.

In some cases, the heart is displaced by the dilated lung, which pushes it downwards, so that its impulses become manifest in the epigastric region.

The chief physical signs in this disease, are the greater sonorousness of the elevated portions of the chest on percussion, and the diminution of the sound of respiration on auscultation. A sibilant or subcrepitant *rale* is often mixed with the respiratory murmur; and, in some patients, at a more or less advanced stage of the disease, there is palpitation with œdema of the lower extremities.

The dyspnœa is regarded as almost pathognomonic of emphysema, if we take into consideration its commencement at an early age; its duration; its being continuous, although paroxysmal ; and its being unattended by, or separable from, the other symptoms of diseases of the heart. It cannot easily be mistaken for chronic bronchitis, as the latter does not give rise to paroxysms of dyspnœa, to prominence of the chest, and to constant diminution of the respiratory murmur. From dilatation of the bronchia, it is known by the respiration in the latter, instead of being weaker, being

stronger, throughout a certain extent, than in the natural condition, and the voice being more resonant. From tuberculosis of the lungs, it is known by the circumstance, that there is flatness on percussion in some part, in the latter; whilst in emphysema the sound is clearer than common, and there is, in general, neither emaciation nor fever. From aneurism of the aorta, or any tumour which might compress the trachea, or a large bronchial tube, it is distinguished by the dyspnœa, in these cases, being more severe and more constant, and generally accompanied by a whizzing sound, which does not occur in emphysema.

The physiognomy of an individual laboring under this disease, has been esteemed almost characteristic; the complexion being of a dusky hue, and the countenance, although with an anxious and melancholly expression, having, in several cases, a degree of fulness, which contrasts greatly with the condition of the rest of the body. This has been supposed to result from hypertrophy of the cellular membrane and respiratory muscles of the face; the first produced by repetitions of venous obstruction, and the second by the violent exertion of the whole system of respiratory muscles.—The nostrils are dilated, thickened, and vascular; the lower lip is enlarged, and its mucous membrane everted and livid, so as to give a peculiar expression of anxiety, melancholy and disease to the countenance.

Treatment.—Very little can be done for the bronchial vessels, or for air-cells that are in the state above described. The cause must be sought out and removed. The most that can be promised in dilatation of the air-cells or pulmonary emphysema, is an alleviation of the disease: 1, by shortening and moderating the violence of the paroxysms; and, 2, by an appropriate regimen and precautions diminishing their frequency. In mild attacks, when the dyspnœa is inconsiderable, and the bronchitis slight, rest and demulcent drinks may suffice; but where the dyspnœa is more oppressive and exacerbative, counter-stimulants, by means of rubefacients to the lower limbs, purgatives and nauseates will do good. If, again, the breathing is very laborious, the face suffused, and of a livid hue, and there are evident marks of impeded circulation and pulmonary congestion, we must have recourse to a full course of medicine. Notwithstanding this energetic treatment, the dyspnœa will often still persist; and then good effects may be derived from emetics of Lobelia. This remedy is most indicated when the bronchial secretion is very abundant, and the sputa with difficulty expectorated. M. Piorry prescribes vomiting during successive days.

If we have infiltration of air in the areola tissue, we must use the most energetic means to confine it to as narrow a space as possible to prevent its extension over the surface of the body and this must be accomplished by bandages and compresses as described by our works on Surgery.

PHTHISIS PULMONALIS—CONSUMPTION.

Description and Causes.—Phthisis means a wasting away, or a consuming; but of late years the term has been restricted to that *species* of wasting disease, which consists in the occupation of the lungs by tubercular matter, and the changes which that matter *suffers* and *works*. But it would be an error to supppse that the disease is restricted to the *lungs* in these cases. The lung disease would be sufficient at length to destroy life; but its mortal tendency is aided and accelerated, in most instances, by disease of a similar character, situated in other organs. "The *pulmonary* consumption is no more than a *fragment* of a great constitutional malady." But that malady plays its part most conspicuously in the lungs.

This word "*phthisis*" is derived from φθιω, to *consume*. This disease is apparently of a scrofulous nature. The substance which is deposited is precisely that which takes place in those parts which are said to labor under scrofula. Some have made varieties in phthisis, as being tubercular or not; but by "*phthisis*" is now meant, not an *ulceration* of the lung, but a *scrofulous disease* of the lung; which *may* produce ulceration; and which *will* produce ulceration, if it continue long enough. But ulceration not connected with this disease, is not called "consumption." An abscess may be formed from common inflammation, rare as it is: but that is not called "phthisis;"—it would be called simply "an abscess in the lungs," or "vomica." By "*phthisis*" is meant a deposition of a scrofulous substance in the lung; and all the organic changes to which its presence, or the state which produces its presence, gives rise.

The assemblage of morbid phenomena, usually designated by the term *consumption*, may arise from various pathological conditions of the respiratory organs, which in a practical point of view, it is of much consequence to discriminate from each other. Thus, the symptoms by which physicians are in the habit of recognizing

the presence of consumption may depend: 1. On chronic inflammation of the mucous membrane of the bronchia; 2. On ulceration and chronic Inflammation of the larynx or trachea; 3. Chronic inflammation of the pleura: 4. Inflammation and the formation of vomica, or abscesses in the parenchymatous substance of the lungs; 5. Ulceration of hepatised lungs; 6. Ulceration with melanosis; 7. Infarction of the lungs with morbid cartilaginoid granulations; and, 9. Softening of tuberculous matter in the lungs, with more or less chronic inflammation and disorganization of the pulmonary tissue.

1. *Laryngeal and tracheal Consumption.*—Ulceration of the *larynx* or *trachea* gives rise to what is termed *laryngeal* or *tracheal* consumption, a variety of phthisis, which is generally rapid in its course, and always of a most fatal tendency.

Tracheal and laryngeal consumption usually begin with a slight tickling cough; an obscure feeling of uneasiness or pain in some part of the trachea or larynx; occasional oppression of breathing, and slight febrile irritation in the evening. One of the first and most constant symptoms of this variety of the disease is *a change of the voice;* which becomes indistinct, hoarse, feeble, and whispering. The patient is apt to feel and press the larynx or trachea with his fingers. When the larynx is the seat of the local affection, the first words in the morning are uttered with considerable difficulty. The pain in the larynx or trachea, is always increased by coughing, external pressure, and by the inhalation of irritating vapors. When the trachea is the part affected, an increase of the pain is experienced on bending the head backwards, or on turning it round. This is not the case when the larynx is the seat of the disease, here the pain, as well as the cough, is increased by the use of stimulating gargles, and the inspiration of cold and damp air. In laryngeal consumption, the cough is generally violent early in the morning, until something is expectorated; and like spasmodic cough, it often subsides for a considerable time, and then returns in sudden and violent paroxysms, the inspiration during the fit of coughing being stridulous, as in croup. A fit of coughing is almost always excited, when the patient begins to swallow; and it seems at first as if the cough were excited only by quick and careless swallowing, yet as the disease advances, the utmost caution in this respect will not prevent this act from exciting the cough. The quantity of the sputa is not great in the laryngeal variety of the disease; but, in tracheal phthisis, it is often abundant, consisting chiefly of a viscid, transparent, and frothy mucus,

with small masses of purulent matter floating in it. When the disease is once fully established, the usual symptoms of hectic fever occur, the body wastes rapidly, the skin becomes sallow, and the face generally pale, with a transient flush on one or both cheeks in the evening, and a peculiar haggard and anxious expression of the countenance, with an irritable and dejected state of the mind.

The ordinary *causes* of this variety of phthisis are; neglected catarrh; hooping cough; measles, and syphilis. Dr. Armstrong mentions an instance, which was excited by an external tumor pressing on the wind-pipe.

2. *Pleural Consumption.*—Another variety of consumption, as stated above, depends on effusion into the cavity of the thorax from *chronic inflammation of the pleura.* While the effusion into the cavity of the chest is going on, the lung becomes more and more separated from the surface of the thorax, being gradually compressed by the accumulating fluid until it is reduced to a very small size, and more or less disorganized in its structure. Whilst this is going on, ulceration sometimes takes place in some part of the pulmonary pleura, and the corresponding substance of the lung, and an opening is thus made into the bronchial tubes, through which the effused sero-purulent fluid is discharged by coughing or expectoration. When this takes place, irritative fever, with night sweats, frequent cough, emaciation, and in short, all the ordinary symptoms of phthisis pulmonalis, usually supervene. This form of pneumonic disease is generally the consequence of acute pleuritis. This affection is characterized by a sense of oppression in the chest on lying down; difficult and hurried respiration on ascending stairs, or muscular exertion; short, disturbed sleep; paucity of urine; a short, tickling cough, aggravated on first lying down; spells of hurried and oppressed breathing after speaking; and generally, more or less soreness of the external surface of the affected side of the chest. The patient is easiest when in a sitting posture; and "if requested to take a deep inspiration while in the erect position, he will generally do it with little apparent difficulty; but lay him down flat, and cause him to fetch his breath deeply, he will be almost certain to complain of pain, tightness, soreness, load, or some kind of inconvenience in the chest." Death often occurs suddenly, and is almost invariably preceded by considerable œdema of the legs and feet. In some instances, after the effused fluid is discharged through the lungs, the progress of the disease becomes arrested, and the pa-

tient recovers a tolerable state of health. When this occurs, the affected side of the thorax contracts to a very manifest degree, forming what Laenec describes under the name of *contracted chest.* In some instances, where ulceration establishes a communication between the bronchial cells and the cavity of the pleura, more or less of pneuma-thorax occurs; but more generally adhesions take place around the fistulous opening, which prevent the escape of air into the chest from becoming so considerable as to compress the lungs.

3. *Imposthumous Consumption.*—Consumption from the formation of *an abscess* in the lungs, is an extremely rare occurrence, although formerly supposed to be one of the most common forms of the disease. Laennec states as the result of his observations, that small abscesses in the pulmonary tissue are not found above four or five times, and large ones not above once in several hundred cases. He regards almost the whole of the reported cases of pulmonary abscesses of the lungs as excavations formed by the softening of tubercular masses. It is nevertheless probable, from the observations of others, that abscess of the lungs is not so uncommon as is asserted by Laennec. Armstrong mentions several instances of this kind, and cases are related by Morgagni, Baillie, Foubert, Wright, Haller, and many others.

4. *Ulceration* of the substance of the lungs, is also occasionally met with in phthisis pulmonalis. Bayle says that this form of the disease occurs only in adults, and most commonly in persons of advanced age. "The lungs of those who die of this affection, present more or less extensive ulcerations, the parietes of which are as black as charcoal, very firm, and several lines in thickness. The parts in the immediate vicinity of these ulcers, appear to be perfectly healthy; but if the disease affects the whole lung, it is hard, compact, black, resembling sometimes leather half burned."

This form of phthisis is often of long duration, and seldom gives rise to any alarming symptoms until it has continued for a considerable time. The patient usually has a moderate cough, attended with a whitish or white puruloid matter, slightly opaque, and usually in roundish masses, swimming in a considerable quantity of a thin mucus. These sputa always swim in water. There is little or no pain whatever felt in the chest; and in some cases the patient is entirely free from feelings of indisposition. Nevertheless, the body gradually wastes; the pulse is generally somewhat more frequent than natural, and, occasionally, the cough excites vomiting. At last the emaciation usually becomes extremely

great, although the patient seldom complains of much illness or uneasy sensation. Very considerable œdema of the legs is a common occurrence towards the conclusion of the malady.

5. *Cancerous Consumption.*—The substance of the lungs is liable to a species of cancerous degeneration, giving rise to a slow and most fatal variety of phthisis pulmonalis. Fortunately, however, this is a very rare variety of pulmonary disease. When the cancerous masses are insulated, there are, in general, many of them throughout the lungs; but the surrounding pulmonary structure is usually in nearly a healthy state. "When, however, the cancerous masses are not insulated, different portions of the lungs, and, occasionally, some of the bronchial glands, are transformed into a white substance, evidently of a cancerous character. The diseased parts are somewhat shining, sometimes of a firm consistence, and at others already softened, and always traversed by extremely small blood-vessels. When the softened parts are compressed, a liquid matter issues from a great number of points, bearing a strong resemblance to cream. This degeneration pursues the same course that other cancerous affections do, and resembles much in its intimate structure the cancerous masses which are sometimes developed in the liver, as well as the alterations which occur in the mucus membrane of the stomach, when this organ is affected with scirrhus."

The progress of cancerous consumption is very slow. At first, the respiration is somewhat obstructed, attended with a dry cough which is rarely very troublesome. As the disease advances, the patient begins to feel some pectoral oppression, the cough becomes more troublesome, and the patient experiences, at times, transient pains in the chest. These pains gradually become more frequent and prolonged, until they are constant, at the same time that the cough becomes less dry, and a more or less abundant expectoration of white matter ensues. The skin is usually of a pale yellow color. This affection, says Bayle, seldom if ever occurs in persons under thirty years of age, and the majority of those who labor under it are at the same time affected with cancerous tumors in other parts of the body.

6. *Granular Consumption.*—In some cases of phthisis, the lungs contain an immense number of *transparent*, shining, miliary granulations. These granulations vary in size from that of a millet seed to that of a grain of wheat, and appear to be of a cartilaginous consistence. Mr. Bayle thinks that they differ entirely from miliary *tubercles*, which latter, he says, are always grey, or white

and *opaque*, and terminate by complete softening. The miliary granulation, generally, at last, give rise to ulceration of the pulmonary parenchyma, and when this takes place, the ulcerated cavity is always found lined with an albumenoid membraniform substance.

7. *Tubercular or scrofulous Phthisis.*—This is a most fatal and unmanageable form of pulmonary consumption. In the commencement of the disease, slight aching pains, with a sense of tension or tightness, is experienced in some part of the chest, together with a short and dry cough, which is readily excited by muscular exertions. Respiration is short and more frequent, and deep inspiration is usually attended with a feeling of uneasiness and tightness in a particular part of the breast. These symptoms gradually become more conspicuous; and at length slight febrile irritation occurs towards evening, and the pulse and respiration continue to be somewhat accelerated throughout the whole day. A fit of coughing usually occurs in the morning, and the patient rises out of bed in a relaxed, languid, and feeble condition. An extreme liability to catarrh, on the slightest exposure to cold and damp air, exists. The bowels are usually somewhat torpid; the tongue is moist, often clean and of a pale pink-color, or covered with a thin white fur. By degrees the cough becomes more frequent and troublesome—particularly in the evening and morning, or at night on awaking from sleep. Great sensibility to low temperature is manifested by the patient. As the disease advances, the albuginea acquires a peculiar pearly whiteness; the skin, lips, tongue, and fauces, become dry in the afternoon, slight chills regularly occur about mid-day, followed by distinct febrile exacerbations, during which one or both cheeks are suffused with a circumscribed flush; a dry and burning heat is felt in the palms of the hands and the soles of the feet; the breathing is very quick and short, and the pulse very frequent, small, quick, and tense. These febrile paroxysms continue until towards midnight, when they terminate in more or less profuse perspiration, which continues till morning, leaving the patient exhausted, languid, and depressed. Previous to the occurrence of these latter irritative phenomena the expectoration, which at first was scanty and frothy, becomes thicker and purulent, and *occasionally streaked with blood.* By degrees the sputa assume more and more the character of genuine pus; the evening exacerbations become more distinct, the night sweats more profuse; the burning in the palms of the hands and soles of the feet more distressing; the cough more frequent and

violent; and emaciation makes evident progress, attended with increasing failure of strength—in short *hectic* fever is now completely developed—the pulse being seldom less than 130 during the evening exacerbations, although generally languid, weak, soft, and not much above its natural frequency in the morning. Towards the unfavorable termination of the disease, œdema of the feet, and colliquative diarrhœa, almost invariably come on, accompanied with a weak and hoarse voice, often aphthæ in the fauces, difficulty of swallowing, and sometimes ulcerated throat. The mind generally continues to be unaffected to the last; but in some instances, "a degree of languid delirium occurs for some days, and occasionally total imbecility for a week previous to death."

It is a remarkable circumstance, that pulmonary consumption is very generally suspended in its progress by pregnancy. As soon as the delivery of the child has taken place, the consumptive symptoms resume their force, and generally advance with rapidity to a fatal termination.

It is equally remarkable that the symptoms of pulmonary consumption occasionally, though indeed very rarely, alternate with mania.

Dr. Storer has published some interesting observations on the conversion of phthisis pulmonalis into inflammation of the brain. The cerebral affection usually commences with headache, which gradually increases, whilst the consumptive symptoms disappear very gradually, until delirium and finally fatal coma ensue. From one of the cases, which he has published, it would appear, that by subduing the disease of the brain, we may frequently put a permanent stop to the pulmonary affection. Dr. Abercrombie, also, has related several highly interesting cases of mania, and other forms of acute cerebral affection supervening on phthisis pulmonalis, with the speedy cessation of the symptoms of this affection. Similar instances are mentioned by Dr. Parry.

Tubercular consumption probably never occurs except in individuals of a strumous diathesis; and it is doubtful, as Dr. Armstrong observes, whether tubercular matter be ever formed in the lungs, without a constitutional or hereditary predisposition to them. Be this as it may, it appears to be well ascertained, that wherever this predisposition does exist, any cause which is capable of irritating the lungs may give rise to the deposition of tubercular matter into their substance, and lead, consequently, to the development of phthisis pulmonalis. It has, however, been a subject of considerable controversy, whether inflammation is capable of caus-

ing the deposition of tubercular matter into the lungs. Bayle, Laennec, Rostan, Louis, and Velpeau, are disposed to allow but little or no influence to inflammation in this respect; whilst Alison, Andral, Cruvilhier, and Broussais maintain that inflammation is frequently intimately concerned in the production of tubercular matter. The following observations of Andral, on this subject, are probably correct: "If the disposition to the formation of tubercles is very strong, then the slightest local congestion of blood is sufficient to give occasion to it; if this disposition is less strong, it is requisite, for the formation of tubercular matter, that the congestion of blood should be so considerable, and so permanent, as to amount to inflammation. But, when there exists no such predisposition, the most intense, and the longest continued inflammation, will not produce a tubercle." Tubercular matter would seem to be formed by a kind of exudation or secretion into the pulmonary tissue; and as it appears to be unorganized, may be regarded as an extraneous substance, obstructing the pulmonary circulation, and giving rise to more or less local irritation. Tubercular depositions in the lungs do not, however, inevitably lead to consumption; for it would seem to be well ascertained, that tubercles may exist in the pulmonary structure *in a dormant* state—that is without entering into the process of softening, or exciting inflammation—and without giving rise either to local inconvenience, or general disturbance of health. In individuals of a scrofulous habit, the formation of tubercles is sometimes very rapid, when pulmonary irritation is excited by any accidental irritating cause. In the beginning, tubercles have the appearance of semi-transparent grains; and as they gradually increase in size, they become united into regular masses, and assume a yellowish and opaque appearance. M. Laennec asserts, that the conversion of the tubercular matter into a soft pus-like fluid, is not effected in a manner similar to what takes place in suppurative inflammation; but by a peculiar process or softening, wholly distinct from suppuration. The softening commences in the centre of the tubercle, and gradully proceeds outwards, until the whole mass is converted into a whitish cream-like matter, which, making its way into the bronchial tubes, is discharged by expectoration, leaving a kind of fistulous cavity. These tubercular excavations become lined with "a species of morbid membrane, of a white and opaque appearance, and very soft consistence; external to which, another membrane of a semi-cartilaginous structure is formed. Bayle thinks, that the *pus* expectorated in scrofulous consumption is secreted

chiefly by the lining membrane of the tubercular cavities; but Laennec asserts, that the greater part of the purulent matter expectorated proceeds from the mucous membrane of the bronchia, which always suffers irritation and chronic inflammation, to a greater or less extent, in every variety of pulmonary consumption. Purulent expectoration from this source occurs in some instances of tubercular lungs, even before the tubercles have undergone the process of softening. Every case of tubercular phthisis, consists therefore of at least two, and sometimes three, simultaneous processes: namely, 1. "the proper tubercular action either in a state of growth or increase, or in that of softening or destruction; 2. of a degree of chronic inflammation of the mucous membrane of the bronchia; and 3. sometimes of inflammation of the pulmonic tissue, of a chronic character, and tending to hepatisation."

As has already been stated, persons may be decidedly predisposed to phthisis, and even affected with a tubercular state of the lungs, and yet escape the disease, if no adequate exciting cause supervene to rouse it into action. In some instances, functional or organic diseases of the liver develope the disease where the predisposition to it exists. Catarrhal affections, however, are by far the most common exciting causes of the disease. The tubercles may also be excited into action by a fixed irritation located in any part of the principal viscera, more especially in the alimentary canal. Repelled cutaneous eruptions have a strong tendency to develope the tubercular action, as indeed all other morbid impressions on the skin have in subjects of a phthisical habit.—The sympathy between the external surface and the lungs is intimate and strong, and an irritation seated in the former, seldom fails to manifest itself in the latter organ—more especially when the lungs are in a state of habitual debility or predisposition to morbid action. It is on this account that phthisis pulmonalis is so common a disease in cold and variable climates, where the cutaneous function is so liable to sudden and frequent interruptions or variations of activity. Among the ordinary exciting causes of this affection, we may also mention the healing up of old discharging sores; atmospheric vicissitudes; the abuse of mercury; intemperance in the use of spirituous liquors; sedentary occupations; excessive venereal indulgence, and onanism; copious losses of blood; the depressing passions; the admission of irritating vapors or fine particles into the lungs—to which latter cause, stone cutters, glass-grinders, millers, needle-grinders, etc., are particularly exposed.

Diagnosis.—The symptoms of phthisis vary, according to the progression of the tubercles. This is the case both with the general symptoms, and with those which are to be learned by the ear. When the tubercles are only in a solid state, and are not united together into groups, we can learn nothing of their existence from the ear. We can only *presume* their existence, from the general state of the patient; and therefore cannot be *sure* that tubercles are formed. When they are sufficiently numerous to constitute groups, then, on striking that part of the chest, we hear a different sound from that which is audible, when nothing but air is present. When the part is softened, and a cavity is produced, various other sounds will be heard. The part will sound different from what it would, were there no cavity at all, and no unnatural state of the parts; but where the air enters a healthy part and leaves it again.

Long before any other symptom occurs, it is very common for the individual to be seized with hæmoptysis,—"spitting of blood." This is usually from the bronchial membrane. The blood is of course frothy, scarlet, and mixed with air. Occasionally it is in considerable quantities; but, for the most part, it is not to any great amount. The patient frequently has several returns of this, before any other particular symptom of phthisis presents itself.—When phthisis occurs, there is then, for the most part, little or no more spitting of blood.

Whether this has occurred previously or not, one of the first symptoms noticed is a short tickling cough;—such a cough as the patient denies even to exist. It is observed by his friends, while he himself for the most part complains little of it; or, if questioned on the subject, denies it altogether. The cough is short, tickling, and hacking, rather than very severe. With this cough there is generally spit up only a little mucus;—either at the same time, or soon after its commencement.

It is very common to hear the patient complain of "a stitch in the side," generally low down; and one would think it was a slight pleuritic affection; only that sometimes the stitch is undeniably felt beyond the chest in the parietes of the abdomen.

The cough is generally worse when the patient gets into bed; owing to the coldness of the sheets; or when he rises in the morning;—from the coldness of the atmosphere of the room, compared with the warmth of the bed. There is felt a little shortness of breath on emotion;—on any exertion, the patient finds that his breath is not so good as before; and he complains of languor.

The flesh becomes soft; so that on taking hold of the arm of a patient, even at this time, we find it is flabby. The hair loses its strength; so that it cannot be kept in order as before. This occurs particularly in females. There appears to be a softness of the hair; which will not allow it to remain in the way in which it has been placed.

There is also observed, about this time, a little feverishness.—The pulse is found to be quicker than natural; and this comes on particularly after the least exertion. An exertion which before would quicken the pulse only perhaps ten beats, will now quicken it twenty or thirty, in a minute. On falling asleep, it is very common for patients to find that they sweat in some one part of the body;—in the calves of the legs, for instance, or upon the chest. The power of resisting external temperature is diminished; so that the patient complains of chilliness.

The expectoration, although only mucous originally, now becomes sanguineous. Perhaps the patient never had hæmoptysis, but the complaint has begun with the general symptoms mentioned; but he tells us, on one of our visits, that what he has spit up was brown, or tinged with blood. That is another form, in which a discharge of blood takes place. Very frequently there is the hæmorrhage before mentioned; but more frequently, perhaps, there is no such thing as any decided haemoptysis; but the mucus, after a time, becomes a little streaked with blood.

Second Stage.—There is now more cough, more dyspnœa, and more debility than before; and the patient begins to find, that he lies more easily on one side than on the other. The patient finds his strength decrease; or, if he do not himself allow it, yet it is evident to others. He cannot make the same exertion as before; and it is also pretty evident that he loses flesh. Occasionally there is a sharp pain in the side, of pleuritic character. There is clearly inflammation of the pleura. If the patient be a female, menstruation is almost sure to decline. The catamenial discharge loses its natural redness; becomes paler than it should be; and, as well as being thus impaired in quality, becomes more scant in quantity; and, more frequently than not, ceases altogether.

Generally, as these symptoms proceed, the ends of the fingers become enlarged. The last joints of the fingers look broader than they did before; the whole appear tumid, and the nail is particularly prominent. The eyes, too, become very clear. There is a whiteness and transparency of them, which did not exist before—The sclerotica looks of a more intense white than natural. The

nails sometimes become very considerably incurvated. The whole nail is more convex than before; and, rather softer—like the hair; and that part of the nail which is unattached to the cutis, is in many instances very much bent. The hair, which at first is only soft, and with difficulty kept in order, now generally falls off.

The expectoration, from being mere frothy mucus, now becomes a little green, or a little yellow, and more abundant; and, instead of being long and stringy—like the expectoration of health—it becomes short between the fingers. Now and then the expectoration becomes fetid, the strength very much declines, the sweating at night becomes very profuse, and the expectoration decidedly sinks in water; whereas, before, either the whole of it or the greater part swam. Shreds are seen in it, whiter than the rest; like curdy lumps, or fragments; and, in some few instances, we may observe earthy matter in it. The latter is, by no means, so frequent an occurrence as the former; but it occurs now and then.

The tongue will sometimes remain in a healthy condition; but in some instances it becomes loaded with mucus, and is foul and yellow, on the one hand; or becomes red at the edges and tip, on the other. Sometimes it is of an intense redness all over; so that it looks like a piece of beef.

Third Stage Hectic.—There is now an increase in the pulse at two periods, at least in the day—that is—in the middle of the day and in the evening; but decidedly in the evening. There is a great exacerbation of it, together with heat of the body, after every meal. The pink sediment of hectic appears in the urine; and the pulse is constantly much quicker than it should be, perhaps seldom below ninety, and frequently above a hundred. The mind and the appetite remain unimpaired. Persons laboring under this disease, will frequently eat heartily to the very last—have a perfectly good digestion; and their mind is as alive and active as it ever was—perhaps more so. Patients generally have hope.—They will not believe they are in a dangerous state—they do not think that their case is consumption. On the other hand, when people are not active, and think they are laboring under phthisis, in nine cases out of ten there is no danger whatever. A remarkable feature in the disease is this hope. Even medical men, who have fallen victims to phthisis, have insisted, up to the day of their death, that they had not ulceration of the lungs; and that they would get well. This has been observed in intelligent men, as well as in those who were most stupid. It is not a matter of judgment, but of feeling and hope—is quite characteristic of this disease

though it is by no means an *invariable* circumstance. Now and then persons despond—being quite aware that the disease is well established and confirmed; but, in a much greater number of instances, there is the most lively hope.

In the greater number of cases, the intestines suffer very much. Perhaps, at the beginning, the intestines are a little dormant; but as the disease proceeds, and especially at the last, the intestines fall into a state of diarrhœa; and the purging very frequently alternates with the sweating. The purging is so severe, that it may be said to melt down the patiennt, and therefore is called "*colliquative* purging;" and the sweating is so profuse, that it is called "*colliquative* sweating." The expectoration becomes more yellow and green than before; and it also becomes more abundant. The cough becomes more severe; the legs become œdematous; and the body wastes exceedingly. The hectic flush is seen, decidedly, upon the cheeks and palms of the hands; and the exhaustion is such, in some cases, that the patient frequently faints. He feels exceedingly languid. The patient is, at last, confined to his bed in all cases; but, in some instances, there is great tendency to syncope and dyspnœa from debility; so that stimulants are required. Just before death, the brain is sometimes affected; so that there is frequently delirium, three or four days before death.

The progress of all these symptoms, is exceedingly various.—Sometimes only a few weeks, but in other cases, many years elapse before the patient sinks under the affection.

Persons will have cough, and expectorate; yet it will not increase, but decline from time to time; and so they will go on, till at last they expectorate a great deal, and die in the usual way.—Dr. Gregory of Edinburgh, used to say that he knew a case, where a person was in a state of consumption for fifty years; but it is impossible to say that the patient labored under *phthisis* all the time; it might have been only *bronchitis*. But it is a fact, that there is very great variety as to the duration of the disease. It is generally quickest in those that have the finest skins, and are nearest the period of puberty; or who are not very much beyond that period. The disease is frequently suspended, on the other hand, by pregnancy, and by suckling: and now and then it has been suspended by other diseases, as by age or insanity. These, however, are only occasional circumstances.

We are now prepared to understand those symptoms, occurring during the progress of this disease, which are acquirable by the ear. At the first period of phthisis, there is nothing to be learned

by the ear. It is from the general appearance of the patient, and from the general symptoms of which he complains, that we suspect the presence of phthisis. At the onset, it is at most only a matter of *suspicion*. We cannot be *certain* of it. It is easy to perceive that this must be the case, when we consider that, in the first instance, the tubercles which constitute this disease are exceedingly small and exceedingly few—leaving a large portion of pulmonary structure perfectly healthy. It is only when the tubercles increase to a certain size, and approximate so as to form a mass, or when a considerable portion of the pulmonary structure is beset with tubercular deposit, that we can expect to discover any audible change.

The parts in which the symptoms acquirable by the ear may be noticed, in the first instance, are below the clavicles. This may be observed before the tubercles have softened; but when they become sufficiently large and numerous to occupy some space, on striking over the part where such deposit exists, we do not find the hollow sound of health, but a greater degree of dulness than there was before. In proportion to the size of tubercular deposit, is the dullness of the sound; and we may save ourselves a great deal of trouble, by beginning our examination at the clavicle, and immediately under it. Still, if we have any suspicion, and yet the parts below the clavicle sound well, we should examine other parts; because now and then the deposition, instead of taking place there, occurs in other situations. In the great majority of cases, however, in nine cases out of ten,—the change takes place just below the superior portion of the lungs; and therefore we should commence our examination there.

Besides this dull sound on percussion, if we listen with the stethoscope, and make the patient speak, we find the voice resounds there in an unnatural manner. The solid substance of the tubercles, is so much better a medium of conveying sound, than the loose structure of the healthy lung, that the sound is louder where these tubercles exist than elsewhere. The voice will not come through the tube, as if the patient's mouth were at the other end of it, speaking to us; but we hear the sound echo; and it is louder than natural. There is no pectoriloquy; but we have what is called "bronchophony;"—the same sound that is heard on putting the stethoscope over the large bronchia. But it is to be remembered, that the voice naturally sounds louder under the clavicle than elsewhere, on account of the large tubes being there; and therefore we should not depend on this symptom alone. It should

be united with the dead sound on percussion, in order to satisfy us that there is bronchophony dependent upon tubercular deposition. It is well to compare the sound on each side ; for the deposition generally takes place more on one side than on the other ; and frequently it occurs *only* on one side; and our suspicion will be increased, as to the really unnatural loudness of the voice, if we hear it louder on the one side than on the other. The difference of the two is frequently very manifest.

But when the tubercular mass softens, and a portion is discharged—so that the cavity is emptied, or nearly so,—a new symptom occurs. The bronchial tubes, we know, enter this cavity; and as the air enters it, the same state of parts exists there as in the trachea ;—that is to say, there is a large space, into which, on inspiration, the air enters ; and consequently, when the patient speaks, the same sound is heard that occurs on putting the stethoscope over the trachea. If we place the stethoscope over the trachea, we have the voice traversing the tube, as though the mouth were at the other end ; and just the same occurrence takes place, when we put the stethoscope over a cavity in the lungs ;—we have the phenomenon called "pectoriloquy." If we make the patient cough, a mucous rattle is heard ;—the same sound as if air were forced through soap-suds. It is a gurgling sound, arising from air agitating a viscid fluid. But as the contents grow less and less viscid,—as the curdy matter of the scrofula is more and more spit up, and mere mucus forms more and more the contents of the cavity, the gurgling is heard louder, and is found to be freer.—Then, if we make the patient breathe quickly, and at the same time rather deeply, we hear the same sound that we do if we make him breathe quickly, and put the stethoscope over the trachea. In the latter case, we have the sound of the air evidently going through a large space ; and the same circumstance occurs in the former instance ;—merely arising from the part being of the same description as the trachea. We have the same phenomena with respect to the voice when the patient speaks, and the same phenomena when we make him cough, that we have when we place the stethoscope over the trachea ;—that is to say, we have pectoriloquy. We may, however, have the same symptom of pectoriloquy in the most perfect health, if we listen over a certain part of the chest ;—especially in thin persons. On placing the stethoscope between the clavicles of a person who is thin, we have pectoriloquy ; because the large bronchia going to the lungs, emit the sound of a tube, even if the individual be healthy.

We must not, therefore, pronounce a person in a state of phthisis simply because there is pectoriloquy between the clavicles; but when it is heard decidedly in other parts of the chest, then there can be no doubt as to the nature of the case.

Treatment.—Although cases of confirmed phthisis may be regarded as almost universally beyond the resources of art, much may be done in the way of palliation; and it is important to bear in mind, that solitary and circumscribed excavations have unquestionably cicatrized, or ceased to exert any influence. The chief indications, in the treatment of tuberculosis, are, 1, to diminish any local irritations or hyperæmiæ that accompany and develope, if they do not lead to, the formation of tubercles; 2, to correct the condition of the system of nutrition, that constitutes the tuberculous cachexy; 3, to promote the removal of tubercles already deposited; and, lastly, to treat troublesome symptoms and accidental complications.

It has been stated, that the tuberculous constitution is often communicated by the parent to the progeny. In the way of hygiene, it is, therefore, important, that precautions should be taken by parents themselves, and every step be avoided, that can deteriorate their general health.

If more consideration were bestowed on matrimonial alliances and a more healthy and natural mode of living were adopted, by persons in that station of life, which gives them the power of regulating their mode of living according to their own choice, the predisposition, which is so often entailed upon their offspring might be checked, and even extinguished in their family, in the course of a few generations. "The children of dyspeptic persons generally become the subjects of dyspepsia in a greater degree, and at an earlier period than their parents; and if they marry into families of a delicate constitution, their offspring become highly tuberculous, and die of phthisis in early youth and even in childhood." These remarks are unquestionably just; but how impossible is it to regulate the feelings of individuals, so that any prudential restraints shall be regarded! Every practitioner, indeed, who has been consulted respecting the propriety of marriage, where one or both of the parties have labored under a disease, or a predisposition unquestionably hereditary in its nature, and who has given advice befitting the occasion, must, at times, have had the mortification to find his advice wholly disregarded, and that he has, at the same time, for ever lost the good opinion of both the parties.

On the part of the mother, care is, doubtless, demanded, for the plenary health of the offspring, during the period of gestation. The prevention of hereditary transmission regards rather the condition of both parents at the time of a fœcundating union ; for the predisposition is as often given by the male as by the female parent. If the tuberculous diathesis be induced during intra-uterine existence, it belongs to the class of acquired predispositions.

As respects children born with a predisposition to tubercle, or who may have acquired the predisposition, although we are unacquainted with any direct remedies for it, we can frequently correct it indirectly,—by placing the child under circumstances most favorable to health ; by giving it proper nourishment, with free exposure to air, under precautions that will always suggest themselves, and by proper exercise, warm clothing, and due attention to the removal of every source of irritation as it arises.

After the period of puberty, when the danger of tuberculous development is shown to be greatest, the same system must be pursued ; with frequent friction of the surface ; warm bathing, exercise in the open air, especially on horseback, or on the water, and appropriate exercise of the respiratory organs, so as to expand the chest, and ensure the full play of the lungs ;—as by taking in deep and frequent inspirations ; gymnastic exercises, which employ the muscles of the arms and chest ; reading aloud, and public recitation under prudential restraints. Some, who have been predisposed to phthisis in early life,—amongst whom may be named Cicero and Cuvier,—have ascribed their exemption from pulmonary disease, to the increased strength which their lungs acquired in public speaking.

In consumptive habits, every thing which tends to irritate the system, more especially the respiratory organs, should be carefully avoided. Attention ought, above all, to be directed to the regular maintenance of the perspiratory function ; and with this view, the patient should be directed to wear flannel next his skin ; to protect himself by proper clothing against the influence of low temperature ; and to avoid, as much as his circumstances may admit, the effects of atmospheric vicissitudes. In the incipient stage of every variety of pulmonary consumption, our constant object should be to counteract the inflammatory tendency of the system, and to remove all sources of irritation. In general, vegetable and farinaceous diet, with milk, is the proper nourishment for a patient laboring under incipient phthisis. The system in all phthisical habits is peculiarly excitable, and readily thrown into a state

of general and injurious irritation by even weak exciting causes. It would be in vain to expect a reduction of the local pulmonary irritation, so long as the system generally is in a state of preternatural excitation. In conjunction with a mild, unirritating diet, the wearing of flannel next the skin, and the careful avoidance of inclement and variable weather, gentle exercise, when the air is mild and unform, will tend to invigorate the system, and lessen its morbid irritability.

Unquestionably, the most efficient of all measures for counteracting the tendency to consumption of whatever grade or arresting its development or progress is thorough and frequent courses of medicine with the proper intermediate tonic treatment. This plan should ever be put in requisition in the incipient stages of the disease. The cutaneous functions derive salutary benefit by the frequent use of the vapor bath, followed by frictions with a dry flannel. The good effect of the operation seems to depend on its power of lessening the activity of the heart and arteries, and thereby moderating the momentum of the circulation, and consequently the general and local irritated condition of the body. The frequent employment of stimulating liniments to the chest or over the region of the disease, is highly recommended. The use of the emetics or full courses must be persisted in every second or third day, to obtain the full benefit of their therapeutic agency. The strength and tests of experience must not be disputed upon this subject. If any advantage whatever can be derived from remediate attention, the evidence of the superiority of this plan is sufficiently attested in the botanic journals of our country.

Composition, capsicum and the expectorants must be intermediately and discriminately given. Lobelia in broken doses either alone or combined with other expectorant mixtures will be very serviceable. The judicious practitioner will always be on his guard against relapses, and on their slightest premonition, full courses must be promptly applied.

The adoption of this course frequently arrests the progress of the disease, when it has been considered advanced and hopeless, and restores the patient comparatively to a comfortable share of health.

The Codliver Oil (Olium Jecorisselli) has had some reputation as a remedy, and may be used with advantage in many cases.

Within the past few years the subject of Inhalation of medicated vapers has gained some popularity as a means of cure, and as some of our Practitioners have been quite successful in its use, we

deem it proper to append a succinct description of the modus operandi as well as general views in relation to the proper remedies.

EXPLANATION ON THE TREATMENT BY INHALATION.

Definition.—By inhalation we mean not a particular remedy, but a particular method of practice consisting of many remedies. That is to say, the medicines inhaled for the cure of consumption are not alike in all cases, nor even in all stages of the same case. Inhaled medicines are adapted to the condition of the lungs, in the same manner that we adapt those given by the stomach, to the object to be accomplished by their use. We may swallow a purgative, an emetic, or an opiate, and though all are taken in the same manner, and pass into the same organ, yet each produces a different effect. So is it with inhaled medicines. We prescribe one inhalation to soothe the lungs, another to expectorate the lungs, a third to stimulate the lungs, a fourth to promote absorption of tubercle, a fifth to astringe the mucous membrane, a sixth to allay spasms in the air passages, a seventh to decarbonize the blood; and on each of these kinds a hundred different forms are made by increasing or diminishing the proportions of the ingredients of which they are composed, or by the substitution of other ingredients of the same class. Inhalation, then, as a practice, is a complicated system. Its principles are simple, but its practical adaptation to the cure of disease, of necessity, most intricate.

Inhalation is only the means of healing the lungs by promoting the absorption of the tubercles. Whatever is necessary to impart tone to the stomach, or to regulate the system in any other respect is prescribed just as though no inhalation were employed. Equally true is this of diet, change of air and exercise. The only aim is to accomplish by inhalation what cannot be accomplished by any other means, viz: to stimulate the diseased surfaces to heal, and to impregnate the blood with medicines which counteract the deposition and growth of tubercles.

There are three principal methods of employing medicated inhalation. The first is by an inhaling instrument, the second by diffusing the vaper through the sleeping room of the patient; and the third by an air tight vapor chamber.

The Inhaler is a glass or tin instrument, holding a little more

than a pint of water, and fitted with glass, tin or ivory, and India rubber tubes, a metallic cap and a glass or ivory mouth piece. When used it is half filled with a tepid warm or hot water decoction, as the case may require, and the tubes placed in position. On inhaling, the air is carried down through the medicated liquid and thoroughly impregnated, in which condition it passes into the lungs. This instrument is generally used three times a day, sometimes four. At each time of use it requires to be charged afresh. The time of inhaling is ordinarily fifteen minutes, but where the patient is very feeble, five or ten minutes will be sufficient, in which case the inhaler may be used four or five times in the course of the day.

The Room Vapor.—Many gaseous substances, and some that require combustion to render them volatile, are used in a small room in the patient's house. The room should be eight, ten or twelve feet square, and tolerably tight, to prevent the vapor from becoming rapidly wasted. There are several means of filling the chamber. The first is by chemical composition; the second by evaporation from a porcelain dish for fluids, or a glass dish for solid substances placed in a small sand bath over a spirit lamp; and the third by burning of medicated pastiles. The nature of the remedy which it is necessary to use always governs, of course, the manner of his volatilization. Into this room the patient goes once, twice, or thrice a day, as the case may require, remaining from fifteen minutes to half an hour at each visit. He may sit down and read or amuse himself with any occupation during the time he is subjected to the vapor.

The Vapor Chamber.—Is an air tight chamber containing forty-five cubic feet of air; connected with it is a gasometer capable of holding eight cubic feet of gas. The patient is placed in the chamber, in the common air, when in an instant the whole contents of the gasometer can be discharged into it. The effect thus produced is first to compress the air, and thereby increase its density; and second, to charge it with such gaseous medicine as the case may require. In this manner we increase or diminish the oxygen of the air at pleasure; we also make it dry or moist. This is, of all our inhalation forces, the most simple and yet the most powerful. Five or ten minutes once a day soon produce a marked change on the health of the patient. In ten minutes we can raise the pulse to 85, or lower it to 55, by changing the character of the gases thrown into the chamber.

The Forms of Volatile Medicines.—Are three folds—first, gases, second fumes, and third water vapor.

All medicines reduced to vapor, and inhaled into the lungs, act locally upon the air-tubes and cells. To this direct action on the diseased surfaces, the comforts which patients experience from their use is due. They produce precisely the same effects that are attained by washes and ointments, on external surfaces. When the mucous lining of the lungs is inflamed, there is always a considerable increase of secretion, and this is also rendered more viscid and tenacious, so much so in many cases, as to almost completely block up the bronchial tubes of the diseased part. When this latter takes place, that portion of the lung which should be supplied with air by the obstructed tubes, becomes collapsed, causing a great increase in the distress of the patient, from shortness of breath. The relief effected by warm soothing and expectorant inhalants in such a condition is prompt. The vapor soon softens the viscid muco-purulent secretion, and causes its expulsion. The air is again permitted to enter the collapsed portion of the lung, and the greatest amount of comfort and improvement immediately follows. Now, if we could accomplish no more than this relief, it would be a great and desirable good to the patient. But it is unnecessary to say that the increased amount of air which is admitted, acts upon the blood, increasing its purity, and retains the tone and health of the entire system. This, however, is not all the benefit attained by the local action of the inhaled vapors.—After the secretions have been expelled we render them more astringent, and thus prevent its re-accumulation. Having improved the tone of the system, cleared the air tubes of all retained matters, and astringed the mucous membrane, we next render the inhalants stimulating, with a view to rouse up the slumbering powers of the diseased organ, and cause the cicatrization of ulcerations, should these exist. In this manner, then, we accomplish an amount of improvement in the condition of the lungs in the space of a few weeks, which could not possibly be attained by any other means, and which at once places the system in the best state for exciting all its powers to throw off the disease.

The Constitutional Action of Inhaled Medicines.—This medicine can be said to truly cure. The most that medicine can accomplish is to remove those influences which obstruct the action of nature and paralyze her powers. We have seen how inhaled medicines do this in their local action. But it is to their power of acting upon the blood and through it on the absorbent system, that we look chiefly for the removal of the tubercular depositions, and the final restoration of the lungs to health. We are aware that

some physicians speak of inhalation as a "purely local treatment," but such only manifest their ignorance, not only of the practice of inhalation, but also on the physiology of the lungs themselves.

The lungs present an absorbing surface, estimated by many physiologists at fifteen hundred square feet, and by none lower than an extent many times exceeding the entire surface of the body.—This surface is designed by nature to bring the blood into the most direct manner possible under the purifying influence of the air. Now, that the surface takes up all gaseous substances, whether medicinal or poisonous contained in the respired air, has been amply proved by every physiologist, and there is no excuse for any physician being ignorant on the subject. For the enlightenment of such as are, we refer them to Prof. Carpenter's "Human Physiology," American edition, 1852—Art. "Inhalation and absorption through the Lungs. After demonstrating that "the absorption of fluid may take place through the lungs," Dr. Carpenter passes to the consideration of "volatile matters diffused through the air." Of the absorption of these he cites many instancs: "A familiar example" says he, "is the effect of the inhalation of the vapor of turpentine upon the urinary secretion. It can only be in this manner that those gases act upon the system, which have a noxious or poisonous effect when mingled in small quantities in the atmosphere; and it is most astonishing to witness the extraordinary increase in potency which many subjects exhibit when they are brought in relation with the blood in the gaseous form. The most remarkable example of this kind is afforded by arseniuretted hydrogen, the inhalation of a few hundreths of a grain of which has been productive of fatal consequences, the resulting symptoms being those of arsenical poisoning." After giving many other illustrations of the promptness and power of inhaled medicines, he closes his observations with the remarkable passage which we quoted in an early part of the argument on treatment:—"It cannot be doubted," says he, "that miastmata and other morbific (disease producing) agents diffused through the atmosphere, are more readily introduced into the system through the pulmonary surface than by any other. And our aim should therefore be directed to the discovery of some counteracting agents, which can be introduced in the same manner. The pulmonary surface affords a most advantageous channel for the introduction of certain medicines that can be raised in vapor, when it is desired to affect the system with them speedily and powerfully."

We hold the doctrine here avowed by Professor Carpenter that

whenever it is desirable to affect the system speedily and powerfully, the medicine, if it can be rendered volatile, should be inhaled. By availing ourselves of this channel, we are able to overcome the tuberculous condition of the blood, to stay the further formation of tubercles in the lungs, and to promote the absorption and expulsion of those already deposited.

The practice, then, of administering medicines by inhalation in the treatment of pulmonary disease is justified in a four-fold degree.

1. It is direct—it conveys the remedies to cure to the very seat of the disease to be cured, and does not subject them to the liability of undergoing change, which is always the case with medicine given by the stomach. The importance of this advantage has never been sufficiently weighed by physicians. No truism is better established than that medicines employed for the cure of diseases act with far greater certainty when they have a specific tendency to the organ affected or are applied directly to it, and no fact is better known than that the contents of the stomach often entirely change the medicines given, rendering them inert in one instance and doubly active in another. Chemical union between acid and alkaline substances takes place as readily in the stomach as in the mortar of the chemist.

2. Inhalation is prompt. Medicines given by the stomach when intended to act upon the lungs have to make the circuit of the system. When given by the lungs, on the contrary, they are brought instantly to the part which requires their aid. Medicines in the gaseous state act with far greater promptness than as solids or fluids, because in the former condition, they are subject to no further change, while in the latter they must undergo a process of decomposition. A vapor acts with the rapidity of touch. A solid, on the contrary, may lie in the stomach for hours before any effects are manifest. In this manner deadly poisons are often washed out by the stomach pump a considerable time after they were swallowed, without the least injury having resulted.

3. Inhalation is more powerful than any other treatment, because remedies in the gaseous state act with a ten fold greater power than when the same medicines are given as solids or fluids. Medicines act with promptness and power, just in proportion to the minuteness of their divisibility. A fluid is more powerful than a solid, and for the same reason a gas or vapor is more potent than either. It is most astonishing, says Professor Carpenter, to witness the "extraordinary increase in potency which many

substances exhibit when brought in relation with the blood in the gaseous form." This is easily understood, when you consider that medicated vapors are medicines in their most delicate and attenuated form—the essence, as it were, separated from all crudity, and subject to no further change. As they are received into the lungs, so do they pass into the system; we can detect them twenty minutes afterwards in every secretion. There is no action which it is desirable to produce on the lungs themselves, or on the condition of the blood, which we cannot produce with tenfold greater certainty by inhalation than by any other possible form of administration.

4. Inhalation is not only direct in its application, and prompt and powerful in its action, but it is in itself an elegant and delicate process, free from every objection. There is no patient so weak that he may not employ it without fatigue, nor any so sensitive to the unpleasantness of swallowing "pills," or "powders," or "mixtures," as to experience the least discomfort from inhaling. No man or woman, however strong-minded, takes nauseous drugs without a strong effort of the will. It is a revolting necessity. How often does it happen that he altogether neglects his health from his unwillingness to swallow medicines which he knows beforehand will increase his discomfort. Could they do so without present disgust and subsequent inconvenience, few men, we are convinced, would neglect the use of the means required for the preservation of their health. Now, inhalation at once overcomes all these affections, and in all affections of the respiratory organs, through air passages and lungs, enables us to produce the most direct, speedy and powerful effects, without causing the patient the slightest discomfort.

In treating lung diseases by inhalation, especially with the inhaler, a physician who is well acquainted with the properties of his general remedies will have little difficulty in adapting them to the case in hand. If they require to be of a relaxing character, the vapor arising from an infusion of Lobelia, will fill the indication. If they require astringency, the vapor arising from Bayberry, Hemlock, Witch Hazel, and numerous other articles, will suggest themselves; and should stimulation be the object, then may the cayenne with its class of remedies be used with advantage, or should all be required, modified to any degree desired, then may such a combination be made as the judgment of the practitioner shall dictate. In supplying the articles necessary for the vapor chamber, a knowledge of chemistry is required, so as to enable the practitioner to graduate the introduction of oxygen or nitro-

gen, or any of the other gases that might be deemed essential.—For the room vapor, pastiles may be made containing gummy or resinous substances, such as Benzoin Gum, Myrrh, etc., mixed with charcoal, so as to insure their decomposition when ignited.—Tar, pitch and turpentine, have their value also, and may be burnt to produce room vapor, or may enter into the preparation used by the inhaler, as well as vinegar, ascetic acid, etc., to increase its pungency.

In these, as in almost all other cases, much must be left to the discretion and judgment of the practitioner, who must judge the character of the case and adapt the remedy thereto as he best may.

MELANOSIS—MELANOTIC CONSUMPTION.

Description and Causes.—Melanosis in its generic character is described to be a morbid product, presenting a black color of various degrees of intensity, somewhat humid and opaque, and possessing the consistence and homogeneous aspect of the tissue of the bronchial glands of the adult. The most frequent seat of true melanosis is the serous tissue, more especially where this tissue constitutes the cellular element of organs. Here the melanotic matter is formed after the manner of secretion, accumulates in the cells of which the serous tissue is exposed, and gradually acquires the form of tumours of various sizes. A similar mode of formation of this matter is observed to take place much more conspicuously in loose cellular tissue, and particularly on large serous surfaces, such as those of the pleuræ and peritoneum. The next variety observed in the seat and mode of formation of melanotic matter is that in which it is deposited in the substance or molecular structure of organs, after the manner of nutrition. And, lastly, the melanotic matter is found in the blood, contained chiefly in the various capillaries, and under circumstances which show that it must have been formed in these vessels.

True melanosis is often met with in the lungs of old persons, either in the interlobular tissue or on the sides of the vesicles; and in some instances the black pigment occurs in extraordinary abundance immediately beneath the pulmonary pleura, where it forms irregular superficial elevations disposed like network. At a less advanced period of formation it may be seen in a liquid form, infiltrating the pulmonary parenchyma, both in its healthy and

morbid states. It is sometimes in isolated masses or encystep. This last constitutes the tuber form variety of melanosis, which includes both the masses and cysts. M. Andral regards it as a form of chronic pneumonia.

Melanotic matter, as seen in the lungs, may also be found at the same time in the liver, spleen, brain, etc. Sometimes melanosis is confounded with the dark matter of the bronchial glands. These latter, it should be remembered, are small, contiguous to the bronchiæ, with smooth surfaces, and whose interior is seldom of any uniform blackness, nor is the liquid oozing out of a pitchy character. It scarcely colors the finger rubbed against it; and in this respect differs from the color of Indian ink which melanotic matter leaves on the skin to which it is applied.

Heusinger has advanced the opinion that black deposits in different parts of the body depend upon a deficient elimination of carbon, and, in particular, of carbonic acid. He believes that they, to a certain extent, compensate for such defective process, being especially prone to form in organs which afford the natural outlets for carbon, although other organs may be similarly predisposed by disease. In confirmation of this view is the fact, that black infiltration is the almost unfailing concomitant of the reparation of pulmonary tubercle, and in a greater or less degree of senile atrophy of the lungs.

M. Guillot endeavors to prove, and he has apparently succeeded in the attempt: 1. That the black colouring matter of the lungs in old persons is carbon (charcoal) produced by the action of the chemical re-agents employed, but carbon deposited in its solid state, during life, in the tissues of the respiratory organs. 2d. That this substance may, by its impeding the circulation and respiration, cause death in the aged and aggravate the effect of acute or chronic affections of the lungs in this class of persons.

Analysis shows the black deposit to possess all the physical and chemical characters of charcoal. Only once did M. Guillot meet in the lungs with a compact mass of carbonaceous substance deposited in layers; it was black, very hard, broke with a metallic shining fracture, infusible, burnt on platinum without flame, and gave scarcely any odour when heated. Carbon is not found in the lungs of children.

Spurious melanosis is attributed, especially by English writers, to the inhalation of carbonaceous matter by those who inhale smoke from lamps and other sources of imperfect combustion, and the volatilized coal-dust in mines.

The physical characters of this form of spurious melanosis, viz: the uniform black colour of both lungs, the absence of any similar discoloration of any other organ; the occurrence of the disease in those habitually exposed to the inhalations of the coal-dust always contained in the atmosphere of a mine; and the black matter found in the lungs consisting essentially of this substance, are, Dr. Carswell observes, circumstances which demonstrate clearly the origin of the black matter, and its identity with the carbonaceous powder inhaled with the air in breathing. In corroboration of this view it was asserted, that the greatest amount of black infiltration affected the lungs of those who worked in coal-pits, and it was termed, accordingly, *anthracosis*.

M. Andral, on the other hand, who does not draw the distinction between two kinds of melanosis of the lung, adverts to the opinion of its originating from carbonaceous matter introduced into the bronchiæ by inhalation, and thence into the lungs; but, he adds, that this disease has been met with in all conditions of persons and modes of life, in the country as well as in town, in the house of the latter as in those of the former. These remarks must apply to true melanosis.

It is very clear from the preceding statements: 1st. That carbonaceous deposits in the lungs, pseudo-melanosis, take place in old persons, particularly, without any known or appreciable origin, in the constitution of the air which they breathe or in any volatile substances suspended in it; and 2d. That the lungs of persons, young and in the prime of life, under certain circumstances of exposure to air constantly contaminated with carbonaceous substances, as in mines, etc., also exhibit carbonaceous deposits in greater abundance even and aggravation than is exhibited in the lungs of old persons. Strong as is the connexion between such exposure and the occurrence of these deposits, the relation of cause and effect may still be legitimately doubted, when the alleged effects or identical anatomical phenomena occur in the absence of the presumed cause, as in the class of subjects mentioned by M. Guillot and others. It is possible, that the dark treacle-like expectoration of the miners described by Dr. Makellar, derived its colour from mixture with the minute dust of coal, accumulated in the pulmonary cells and minute bronchial terminations; and that the expectorated matter was not primarily or properly a dark or black secretion. We need not of necessity, in this view, admit that the carbonaceous deposit was the direct result of the inhalation of smoke or volatilized coal-dust and of its passage through the air-

cells, but rather this kind of exposure predisposed the individual in a greater degree to the formation of carbon in the state in which it is found in the lungs of both classes of subjects, the one described by M. Guillot and the other by Dr. Makellar.

You will remark that the spurious melanosis is distinguished from the true, by its occurrence in those persons only who are somehow exposed for a certain length of time to breathe an atmosphere which is largely encumbered with carbonaceous particles; whereas true melanosis may occur in any locality. The spurious decoration never affects any other organs than the lungs and bronchial glands; the true black deposit of melanosis is never confined to a single organ or tissue. Moreover, the one disorder is absolutely beyond remedy; the other, as soon as its presence is rendered probable, by the black expectoration and the pulmonary distress, may be mitigated, checked, perhaps gradually cured, by removing the patient from the operation of the exciting cause, and pursuing such other measures as the symptoms may seem to require. The distinction is not a matter of mere curiosity; it bears upon the treatment to be followed, which is our proper business. It is connected also with medical police or hygiene, which, we should all of us cultivate as extensively as we may: as a science intimately related to our strictly professional pursuits, and to the welfare of the community.

Diagnosis.—The leading features of the disease have been well described by Bayle under the name of "Phthisis with Melanosis." They are, at first and often for a length of time, slight, and consist of cough accompanied with a white expectoration, the sputa of which are generally round and rather opaque, and swim in a large quantity of diffluent pituity. In some there is no complaint of pain or oppression, but only of their cough preventing them from sleeping. They gradually, however, become thinner, and their pulse is usually more frequent than in health. In the latter period of their life, these patients exhibit an extreme of marasmus, but appear to be scarcely indisposed, although they often expectorate a great deal. Some die in a few days after they had been for the first time considered seriously ill.

The subjects of the disease coming under M. Guillot's notice were thin, pale and weak. They had cough, and expectorated for a great length of time. Some had hemoptysis, but this symptom was most common in the latter period of their life, when the hemorrhage was considerable. The movements of the chest were slow and barely appreciable, the pulsations of the heart were fee-

ble, and if febrile reaction even supervened, it was slight and of short duration; the digestive functions became more and more languid, the appetite was gone and the ingestion of food only produced diarrhœa. The last craving evinced was for wine or other stimulants. The intellectual faculties were scarcely disturbed. The character of the cough varied; sometimes it was dry, but more generally accompanied with the expectoration of abundant and fluid sputa, amounting to nearly a pint in the twenty-four hours. They may be mixed with blood, or pure blood may be expectorated. When this was the case, the lungs were found to be loaded with a great quantity of carbonaceous matter. Hemoptysis, which is the symptom of the approaching end of the patient, is, itself, not preceded by any appreciable cause or any appreciable symptom. It always lasts for several days.

Treatment.—Where this state of the system is produced by the inhalation of carbonaceous matter, the only thing necessary is to remove the patient to another locality where we have no dust or carbonaceous particles floating in the atmosphere. This spurious melanosis will not require medicinal agents, but the true diseased species which consists of a tuberculous deposit or perhaps of a carcinamatous character, will seldom yield to any remedy, as it is in most cases incurable. The same treatment, however, that we have recommended for Consumption, if the melanotic deposit is in the lungs, will be indicated, and if it is in other organs, we must pursue the same course we have recommended for the several diseases of these organs.

After this is done, remedies will be directed according to the indications furnished by the symptoms, preference being given to the means of promoting free pulmonary transpiration and expectoration; and among these moderate exercise in a pure air and attention to the state of the skin must rank among the foremost. The prevalence of a cachectic habit, if not of positive amenia will suggest the use of chalybeates and analogous remedies.

DISEASE OF THE HEART.

General Observations.—In *structure* the heart is a compound hollow muscular organ, consisting of four compartments or cavities lined with serous membrane and invested by fibrous capsule, external to which is a serous membrane, that forms, by redupli-

cation, the pericardium or heart sac. The lining membrane of the heart has been named by M. Bouillard *endocardium* (from ενδον, within, and καρδια, heart.) It is transparent and delicate, smooth and highly polished. It is more delicate and fine in the right cavities than in the left, and is least so about the orifice. The contraction of the heart and the direction in which it chiefly contracts will be understood after knowing the origin and insertion of its fibres. The greater number of these, or fleshy bundles, arise from and are inserted into the strong fibrous rings which form the auriculo-ventricular openings, or in tendinous prolongations from them. The contraction of all these muscular fibres is towards the auricular and arterial orifices, which are the most fixed parts of the organ, and the effect of the contraction must be to press the contents of the cavities towards these openings. Attached by the vessels at its base, and with its apex free, it is drawn towards these vessels at each contraction; and the anterior surface being more convex, from the fibres being much longer than those behind, their contraction is greater, and the apex is, also, drawn forwards as well as upwards.

The *valvular machanism* of the heart, so important for the discharge of the function of this organ, must be understood in order that we may appreciate the nature of its deranged and irregular contractions. The office of the semi-lunar valves is obvious enough from their mere mechanical structure. Attached by the whole of their convex ventricular margins, they fall loose and unresisting against the sides of the arteries at each gush from the ventricles; but no sooner does the gush cease, and the distended arterial column press backwards, than their loose arterial margins are caught by the first turn of the refluent current, and they are distended into three sacs, the free sides of which being in close contact completely intercept the passage of blood back into the ventricles.—This action is merely mechanical, and can be produced in the dead body; it will be more perfect in proportion as the backward pressure from the arteries is greater. The auriculo-ventricular valves (the tricuspid and mitral) on the other hand, will not act well after death: their office depends on the vital contraction of the fleshy columns, to which their chords are attached, as well as on the mechanical spread of their laminæ. On the right side we see the irregular triangular curtains of the tricuspid valve, which are drawn in succession, one somewhat behind his neighbor. When the right ventricle is much distended, these curtains do not entirely reach across the orifice; and regurgitation takes place. This

seems to be a provision against an excess of pressure on the pulmonary vessels, and induced Mr. Adams of Dublin first to call this valve a safety valve.

The heart in action, though not felt by the person himself, in health, communicates its *beat or impulse* perceptibly to the one making an examination, when his hand is applied to a particular part of the chest, viz; to the left front between the fourth and sixth rib, and about two inches below and in front of the left nipple in males; but the impulse varies remarkably, both in strength and extent, according to the stage of the respiratory act and the posture of the body, as well as from differences in the strength of the individuals examined. Modifications will also occur from tumors and a distended stomach. The greater thickness and strength of the left ventricle make its motions more forcible and extensive than those of the right; and it is, perhaps, as Dr. Williams suggests, that for this reason this ventricle is placed to act chiefly on the soft cushion of the lung, which offers no unpleasant resistance to it.

It has been affirmed by an accurate observer, that the dimensions of the heart are in a direct ratio with the breadth of the shoulders, and that the organ is always larger—not relatively but absolutely—in persons of middle stature or under, than in those who are remarkable for their height.

The Weight of the Heart varies also in different individuals, and at different periods of life; so much so, indeed, that but little importance is attached either to the weight or size by some observers. Compared with the weight of the body, it has been estimated as one to one hundred and sixty, and as one to one hundred and fifty. The main weight has been variously estimated—by some, at six or seven ounces, by others, from eight to ten ounces.

A recent writer states, that he carefully examined nearly four hundred hearts of both sexes, and of all ages above puberty. The result was about nine ounces avoirdupois—the average weight of the female heart being about an ounce less than that of the male.

When the ear or the stethoscope is applied to the præcordial region, we hear first, a dull lengthened sound, which is synchronous with the arterial pulse, and is evidently produced by the contraction of the ventricles. This is instantly succeeded by a sharp, quick sound, like that of the valve of a bellows, or the lapping of a dog. It corresponds to a part of the interval between the two arterial pulsations. Between this second sound and the first is a

period of repose, which makes up the entire interval between the pulsations.

The cause of the sounds of the heart has been an interesting subject of inquiry, and has engaged the attention of some of the best modern observers. The first sound is referrable to the systole of the ventricles, and the sound to the obstacle presented by the semilunar valves to the return of the blood from the arteries into the heart. That the first sound is synchronous with contraction of the ventricles, and the second with their dilatation, is scarcely disputed by any; and recent researches by competent observers, have shown that the above views are probably correct.

The heart is a living forcing-pump; a hollow muscular engine, with its chambers and their outlets, its contractile walls and their strength and thickness, so admirably adjusted, that the healthy balance of the circulation is continually maintained, under many varying outward influences and inward emotions which tend to destroy it. In treating of disease of the heart we have to consider, therefore, the modes in which its mechanism may be spoiled or deranged and the effects of such derangements.

Not only the component tissues, but different portions also of the organ, may be separately diseased. It seldom happens, indeed, that the whole heart is affected; although that is probably the vulgar belief. The left side is much more obnoxious to morbid changes than the right: and when both sides are implicated, the alteration is almost always more decided and conspicuous in the left than in the right chambers.

HYPERTROPHY OF THE HEART—ENLARGEMENT OF THE HEART.

Description and Causes.—Hypertrophy of the parietes of the heart is not uncommon. It may occur along with dilatation, diminution, or the natural condition of the cavities. "These puerile distinctions," observes a recent writer, "have fixed, in a singular manner, the attention of persons who see few patients; but they attract little attention from those who cultivate medicine in a vast field of observations."

The muscular tissue of one or more of the chambers of the heart may become thicker and stronger than natural, while the

capacity of that chamber, or of those chambers, remains unaltered. The hypertrophy in that case is said to be *simple*.

But while the muscular parietes are thickened, the corresponding chamber may become unnaturally large. This constitutes the *active aneurism* of the heart of Corvisart, the *eccentric* hypertrophy of modern writers.

On the other hand, it has been supposed that the capacity of a cavity of the heart may diminish in size as its walls increase in thickness: that the hypertrophy may take place *at the expense* (as it were) of the chamber. This has been callled *concentric* hypertrophy.

Now of these three reputed forms of hypertrophy, considered in their relation to *disease*, two only, the simple and the eccentric, have any real existence. The third, or concentric form, never occurs, I believe, except as a congenital malformation. And of the two genuine species of hypertrophy, the eccentric, which is plainly a compound affection, consisting of *hypertrophy with dilatation*, is much the most common. The reason of this is to be found in the physical cause of the morbid condition, in most instances.—The physical cause, in nineteen cases out of twenty, is some obstacle, mechanical or virtual, to the perfect accomplishment of the function of the chamber; some obstruction opposed to the free and thorough exit of the blood from it; or something which hinders the easy play of the organ: hence, in the first place, a gradual yielding, or tendency to yield, in the sides of the affected chamber, from the continual and unwonted pressure of the accumulated blood against them, and in the second place, a *striving* action of the muscle to overcome the hindrance, or to counterbalance the obstacle; and consequently, according to the law formerly announced, an augmentation in the bulk of the muscle whereof the function is thus increased. If the hypertrophy, which is the result of a truly conservative process, keeps pace exactly with the amount of the obstacle and *exactly balances* it, no dilatation happens, or next to none. But this is comparatively seldom the case. According to the principles of mechanics, a little distension of the spheroidal cavity must require an increase of force to propel from it a given quantity of blood, in the same time, through a given discharging orifice. So that incipient dilatation becomes (in addition to the supposed obstacle) an efficient cause of hypertrophy: and the two, the dilatation and the hypertrophy, commonly make progress together.

The *exciting causes* of hypertrophy are either of a nervous or

of a mechanical nature. Under the first head are included all moral affections, and derangemements of the nervous functions that excite long-continued palpitation. The second embraces all those causes which can either accelerate or obstruct the circulation, and thus occasion a preternatural pressure of the blood upon the heart; such are violent and sustained corporeal efforts of evevery description. These violent exercises may even occasion rupture and inflammation of the valves and aorta, issuing in incurable organic disease. It is *protracted* efforts that are, in Dr. Hope's opinion, always the most pernicious. Malformation of the chest, either congenital or occasioned by curvature of the spine, encroachment of the diaphragm on the cavity of the chest from the pressure of the gravid uterus, of ovarian dropsy, or other abdominal tumours, but perhaps above all, continues Dr. Hope, of long, stiff stay-bones, or wooden *busks*, which, by fixing the abdomen, prevent the descent of the diaphragm, are so many causes of hypertrophy of the heart. Mechanical obstacles to the passage of the blood from the aorta, as valvular disease or extreme smallness of this canal, or of the pulmonary artery, are also, causes of more frequent occurrence than has been generally admitted. Inflammation of a contiguous serous membrane, as of the pericardium or pleura, is also a not unfrequent cause; although not to the extent asserted by Bouillaud, who asserts that it is almost always complicated with chronic pericarditis or endocarditis, or their consequences. Dr. Clendinning tells us, that in upwards of five hundred autopsies made by him of patients dead of various diseases, above one hundred and seventy, or above a third of the whole number, proved to have had heart disease in some form or other. Five-sixths of these were, he says, cases of hypertrophy uncomplicated with other diseases of the heart, such as pericarditis, endocarditis, or valvular disease. In about thirty cases only, or in about one-sixth of the whole, was well-marked valvular disease detected; in all these last cases, with but one exception, hypertrophy existed.—We are constrained to admit that in a majority of the cases the disease comes on slowly, without any apparent cause.

Diagnosis.—In the first place, if the heart be larger than natural, it will be heard to beat over a proportionally larger space. In this way it may come to be heard all over the chest in front; and behind on the left side of the spine; and even, in extreme cases, on the right side of the spine.

Again, the extent of space over which the heart may be heard to beat will be increased in proportion to the thinness of its walls;

and diminished, *ceteris paribus*, according to the thickness of its walls. So that when the heart is nearly its proper size, if its walls be thin, it will be heard beyond its natural limits; and if its walls be morbidly thick, *i. e.*, if it be affected with considerable hypertrophy, it will not be heard beyond, nor even to the extent of its natural limits. We will endeavor, presently, to explain the reason of these differences.

Again, and this it is of great importance to remember, the heart may be heard far beyond its natural limits, even when it is perfectly healthy, in consequence of the lung between the ear and the heart having become solid, and therefore a better conductor of sound: and solidification may have resulted from hepatization, or from the presence of a number of crude tubercles. The sound of the heart's action will also be conveyed to a distance by the liquid effusion in pleurisy. If we are not aware of these circumstances, we are continually liable to fall into mistakes.

The heart is likewise heard more distinctly, and over a space which is comparatively larger, in children than in adult persons; and it may be heard over a wider extent of the chest whenever its action is augmented by exercise, by emotion of mind, or by febrile excitement.

The *impulse* of the heart is another point which you must attend to. In healthy persons who are thin, you may generally feel the stroke which the heart gives to the ribs, by placing your hand on the præcordial region. In persons who are fat, you often cannot feel the heart at all in this manner. For obvious reasons, it is felt more distinctly, over a larger space, and higher up, while the person is stooping forwards, or makes a forced expiration; less distinctly, over a smaller space, and lower down, when he makes a deep inspiration, or is lying on his back. In proportion as the heart is enlarged by disease, it can be felt more extensively: and when there is hypertrophy, the force with which it strikes the parietes of the chest is sometimes extraordinary, and very instructive. You will see the ear and head of the listener distinctly lifted at every pulsation; sometimes the whole of the patient's body, nay his very bed, is shaken by the strong shock of the heart during its systole. There is no sign of hypertrophy so sure as that afforded by the heart's impulse. You feel, not a smart, quick, and sudden knock, but a steady, heaving, irrepressible swell, which is perfectly characteristic. You may always infer increased thickness of the walls of the organ, when you meet with this regular heaving motion; and the extent to which the whole heart is enlarged in

such cases may be conjectured by the extent of space over which the heaving impulse is perceptible.

The *sounds* which we hear are two. One of them coincides, in point of time, with the impulse; and barely precedes the beat of the radial artery. It happens, therefore, when the ventricles contract; during the systole. It is called, accordingly, the *systolic* sound, or the *first* sound of the heart. The other of the two sounds coincides with the diastole, and is spoken of as the *second* or the *diastolic* sound.

The natural sounds which we have been describing are liable to be changed, or modified by disease. Some of the modifications indeed, we have adverted to as we went along. But others, of a more striking and extraordinary character, are yet to be explained. Either sound, or both, may be accompanied by a noise, which, in its commonest type, very closely resembles that produced by the blowing of a pair of bellows. Four persons out of five, if they were asked what this sound resembled, when they heard it accompanying each systolic movement of the heart, would say that it was exactly like the repeated blowing of bellows in an adjoining room. It is called, accordingly, by the French, the "bruit de soufflet;" and, in homely English, a *bellows sound*. This is the generic sound. It may be divided into species; but it is scarcely worth while so to divide it. We are only likely to confuse our notions by over-refinement. So we will only add, that, when this bellows sound is very harsh or rough, persons will tell you that it is more like the noise of a rasp, or a file, or a saw: but all the while it is some kind of bellows sound. These sounds are often denominated *murmurs* also.

Percussion gives occasion to a sound which is more dull than natural, but the difference may not be marked even to a practiced observer. The pulse is generally sufficiently diagnostic of the energy of the heart—being strong, jerking, or vibratory; but when palpitations are induced—and they readily are by unwonted exercise, as running, especially up stairs, or by any moral emotion—the pulse participates in the frequency and tumult in the central organ of the circulation. Under these circumstances, the pulmonary circulation cannot be accomplished as in health, the blood is not freely returned to the left heart, and dyspnœa and oppression of breathing supervene. Owing, likewise, to the blood being forcibly sent along the arteries, the face is generally flushed or florid, and hyperæmia, ending in hemorrhage, or true inflammation is

apt to be induced. In younger individuals this is exhibited by the supervention of epistaxis; in older, of apoplexy.

The physical signs vary somewhat according as the hypertrophy is general, or restricted to the left or the right ventricle.—When general, the pulsations are felt both to the right and left of the median line, and at times extend even to the epigastrium; when in the left ventricle, the pulsations are more sensible on the left side toward the cartilages of the fifth and sixth ribs; and when the hypertrophy affects the right ventricle, they are felt under the inferior part of the sternum, and much less to the left of the median line. It can be understood, that this form of cardiac hypertrophy may give occasion to hæmoptysis; and, as the right auriculo-ventricular valves are insufficient to prevent a part of the blood of the ventricle from reflowing into the corresponding auricle, an impulse may be given by the refluent blood, during the energetic contractions of the ventricles, to the blood arriving by the descending vena cava, so as to occasion the phenomenon in the jugular veins, which has been termed the "venous pulse,"—*phlebopalia.*

It is probable, however, as has been suggested, that this jugular pulsation may be induced without the reflux in question; and that an impulse, fully adequate to the effect, may be given by the auriculo-ventricular valve of the right side, driven, during the contraction of the ventricle, when the heart is enlarged and acting impetuously against the column of blood on the right auricle and venæ cavæ.

When a decided impediment exists to the flow of blood from the cavities into the corresponding vessels, which is a common cause of hypertrophy, other phenomena are associated with those described above; one of these is the *fremissement cataire*, or agitation like the purring of the cat—a tremulous condition of the organ during its systole, which is distinctly felt, not only when the ear is placed over the cardiac region, but likewise by the hand.—It is in these cases more especially, that the bellows sound is largely developed. Whenever, indeed, the two signs exist together, along with the other evidences of hypertrophy, we can have little doubt in inferring the existence of obstruction to the passage of the blood from the ventricles into the arteries.

When hypertrophy of the heart terminates fatally, it is generally owing to the induction of asphyxia, or of other diseases—especially dropsy. The prognosis, indeed, of every form of hypertrophy must be guarded. Sudden death occurs only in cases in which a

clot exists in the heart, or where there is a rupture of the organ.

The quality of the pulse as regards volume and resistance will be not a little modified by the artery itself. Thus, when it has a thin yielding coat, and large diameter, its beat will be relatively full and soft; when small, the pulse will be small and weak. At other times, again, as in old age, the coats of the artery become morbidly resisting and indurated, sometimes osseous, and then of course the pulse will feel hard if not strong. External causes, and particularly heat and cold, produce an effect on the pulse by modifying the state of the arteries. Moderate heat or warmth tends to expand the artery, and in this way to diminish the resistance which it makes to the blood impelled into it by ventricular contraction. Cold, on the other hand, as we learn from daily observation, even without reference to the direct experiments of Schwann, Muller, Hastings, and Williams, causes a contraction of the arteries, and consequently renders the pulse smaller. Dr. Williams, in experiments carried on in 1835 to ascertain the causes of the sounds of the heart, repeatedly observed that when the aorta of an ass, recently killed, was plunged into cold water, it contracted, so as not to permit the introduction even of the little finger, and its coats acquired an increased thickness and rigidity; the pulmonary artery did not contract so much.

The *signs of hypertrophy of the right ventricle*, in addition to the physical or increased impulse and dullness on percussion under the lower portion of the sternum, are, 1, absence of the strong, large, and prolonged pulse of hypertrophy of the left ventricle; and 2, turgescence of the external jugular veins, accompanied by pulsation synchronous with that of the arteries. This last is regarded by Dr. Hoye as one of the best general signs, though after all an equivocal one, of hypertrophy of the right ventricle. Mr. Sibson tells us, that, when the right ventricle is hypertrophied, the lower half of the sternum, the ensiform cartilage, and the left costal cartilages, from the third or fourth to the seventh, are heaved gently and steadily forwards.

It is common to speak of the left ventricle as by far more liable to hypertrophy than the right; but the observations of M. Louis lead to a different opinion. Of 49 cases of valvular hypertrophy 29 were of the right ventricle.

Of *hypertrophy of the auricles* there are no general signs distinguishable from those of disease or obstruction in the corresponding ventricle or orifice to which the hypertrophy of the auricles owes its origin.

Treatment.—The *treatment* of hypertrophy on rational principles should be hygienic and medical. The first consists in an avoidance of all excitement, physical or mental, restriction to a simple diet, chiefly of vegetable and milk, the last in moderate quantities, and, in anemic habits, a very limited allowance of animal food; abstinence from all alcoholic drinks, and from tea and coffee; an active state of the cutaneous function, maintained by frictions, the warm bath, and warm clothing; and, when it can be accomplished, the habitual inhalation of cool air. The quantity of food used, and even of the simplest drinks, must be studied as well as quality; for whatever distends the stomach in the first instance irritates the heart, and distends the blood vessels subsequently. A full meal causes a mechanical pressure on the diaphragm, which is felt by the heart, and by irritation of the stomach affects sympathetically the heart in the same manner.

In such cases, I should give Iron in preference to all other tonics, because we know, from experience, that it answers so much better than they do. Many cases of hypertrophy with dilatation occur, where the patients are in a state of anæmia—in a leucophlegmatic condition; and if we take blood away, it is watery, and we make the patient worse. When patients are in a state of anæmia induced by blood-letting, or in that peculiar state in which the blood is not properly manufactured, the pulse will become sharp; and so, in disease of the heart, we sometimes have a sharp pulse, with great debility of the patient. But if there is a tendency to effusion—as shown in the ankles, or if we hear mucous or other rattles in the bronchia, diuretics are of essential service. If there be general paleness and debility, then iron is one of the best things that can be given; and if the debility be very great, while we give diuretics, we should exhibit the potassio-tartrate of iron; which is both a diuretic and a tonic. With such treatment as this, it is wonderful how much good may be done.—We may certainly cure some cases; and even where the affection is very severe—so that a cure is out of the question—we may still do a certain portion of good—we may make the patient feel better than before, and may prolong life. It is our business to protract life, whether it be desirable for the patient or not. It is our business to act upon a general rule, and endeavor to prolong life; without considering, for a moment, whether the individual would be better *out* of the world than *in* it.

In fact our whole efforts must be directed to the general health and quiet action of all the functions. Our tonic bitters, with our

various baths, to keep up a good termination to the surface will be palliative, and afford all the relief that can be given by medication, for no medicine can afford so much alleviation as perfect quiet of mind and body.

In Reform Practice, however, the following formula has been highly recommended:

R.—Euonymus atrop. (wa hoo),	2 ounces.
Sanguinaria, (Blood Root),	2 "

Pulverize well and put in quart water, and when well decocted strain and make into syrup with sugar.

Dose 1 oz. two or three times a day.

This preparation has been said to exert a sedative and quieting influence on the action of the heart, and also a stimulating action on the absorbents.

Diuretics also have been found beneficial in some cases, especially where we notice a deficiency of urine.

ANGINA PECTORIS—HEART DISEASE.

Descripton and Causes.—These two words in Latin mean *a serpent in the breast*, so called from one of the most common symptoms which is like the writhings of a snake in the breast. There has been much speculation respecting this disease by various authors, and hence the term "heart disease" has been applied to it as including all forms of affection to which this organ is liable.

That the seat of the disorder is the heart, and that it consists in some structural change, can scarcely be doubted. Yet some pathologists are disposed to consider it a mere neuralgic affection, "commencing for the most part in the pneumogastric nerve, and spreading in different directions, as other nerves become involved." But this doctrine is scarcely consistent with the facts—first, that the paroxysm is excited by such causes as are "especially calculated to disturb the natural action of the heart, bodily exertion, and mental emotion;" and, secondly, that the disease is so very frequently and so suddenly *fatal*. This is not at all the character of mere neuralgic diseases in general. And when we add to these facts the further fact, viz: that, in a vast majority of instances, organic disease of the heart, or of the great blood-vessels, has been discovered after death, we shall be obliged to admit that the symptoms are often dependent upon cardiac disease. One theory ex-

plains the "breast pang," by supposing that the blood, whenever its movement is accelerated by exercise or otherwise, arrives in the heart faster than it can be transmitted onwards, and, accumulating in its cavities, painfully distends them. It is not improbable that the paroxysm may be sometimes so produced. The great Dr. Jenner took a most ingenious view of the matter, which was made public and further enforced by Dr. Parry. He had found, in examining the bodies of some who had died of well-marked angina pectoris, that the coronary arteries of the heart were ossified; converted into bony canals, and constricted in their calibre. He thence concluded that the paroxysms result from the circumstance, that when some increased supply of blood, rendered necessary by the additional exertion, is not capable of being furnished by the diseased nutrient arteries of the organ, that the heart comes to a stand, because its muscular tissue is not duly injected with arterial blood ; and the phenomena of the paroxysm agree remarkably well with that theory. He calls the disease, accordingly "*syncope* anginosa." And this simple and beautiful theory was for some time admitted as the true one. However, later investigations have abundantly shown that angina pectoris may occur in a decided form, without there being any ossification or other disease of the arteries ; and, on the other hand, that the coronary arteries may be ossified, and yet no angina pectoris be the result.

Diagnosis.—Angina pectoris consists essentially of a violent sense of constriction and pain across the chest, extending along the neck, shoulder and arm, with great distress and sense of suffocation ; these symptoms recurring in paroxysms, and at uncertain intervals.

The first attack of the disease is, at times, sudden—commonly so, indeed—and takes place when the person is ascending a staircase, or going up hill ; he is arrested by an excessively lancinating and constrictive pain which causes him to stop. This pain, which is in the region of the heart, generally ceases soon, and leaves the individual nearly in his accustomed health. At first the interval may be considerable, but, subsequently, the paroxysms become more frequent, and are brought on by slighter and slighter exciting causes—the most trifling mental uneasiness giving rise to them. Their approach may be indicated by yawning and a sense of heat in the chest. In very bad cases, the paroxysms occur several times in the course of the day, and the pain shoots to the neck, and along both upper extremities, especially the left, as far even as the fingers. The patient is under constant

apprehension of impending dissolution: this sooner or later happens, for the prognosis is always most unfavorable, death taking place very suddenly, at times, in one of the paroxysms—at others, fatal syncope occurring when least expected, and even when the person is under no unusual mental or corporeal excitement.

The pain, which at first was confined to the chest and upper part of the left arm, reaching commonly only as far as the insertion of the deltoid and pectoral muscles, afterwards often extends along the ulnar nerve down the inside of the arm to the elbow, wrist, or even to the fingers. It occasionally, though rarely, affects the right arm also, the neck, and lower jaw towards the ear, causing a feeling of choking and difficulty of articulation; and may even reach, though this is much more uncommon, to the lower extremities. The pain often follows the course of the anterior thoracic nerves, more especially of the left side; and in females there is at times, from this cause, extreme tenderness of the breasts. In some anomalous cases the painful sensation has been known to originate in the arm, not being at all felt in the chest till a more advanced period of the disease.

The duration of the seizure at the commencement rarely exceeds a few minutes, though it may last for half an hour or an hour, and in the more confirmed stage of the affection the paroxysm may be still further prolonged.

The pulse is subject to great varieties, being in the slighter forms often but little affected; while in the protracted and more aggravated cases it is feeble, irregular, or intermittent in some, quick and strong in others; its derangements, which often continue to a certain degree in the intervals, being frequently accompanied by a marked tendency to syncope. The respiration is sometimes affected to such a degree, that the patient cannot continue in the recumbent posture: yet the difficulty of breathing, in the earlier stages more especially, is very unlike spasmodic asthma; for the patient, by an effort of the will, is still able to take a full inspiration, and sometimes finds a momentary relief from the effort. A patient of great strength of mind has been known to persist in walking, in spite of the vehemence of his sufferings; and his resolution has been rewarded by their speedy cessation.—Others, again, have made a similar attempt without the like result; and we apprehend that where the attacks, as is so often the case, are connected with that excited and over-loaded state of the heart induced by muscular exertion, the experiment cannot be

exempt from hazard, and especially so if any organic disease exists.

In the first stage of the disease the uneasy sensation at the end of the breast bone, with the other unpleasant symptoms which seemed to threaten a total suspension of life by a perseverance in exertion, usually go off upon the person's standing still, or turning from the wind; but in a more advanced stage they do not so readily recede: the paroxysms make their attack in the night, they are much more violent, and in a few cases have continued for several days. During the fit the pulse sinks in a greater degree, and becomes irregular, but in some instances it is not much disturbed; the face and extremities are pale, and bathed in a cold sweat, and for a while the patient is perhaps deprived of the powers of sense and voluntary motion. Sometimes the stomach is morbidly affected, becomes unusually irritable, and rejects whatever is swallowed. The disease having recurred more or less frequently during the space of some years, a violent attack at last puts a sudden period to his existence. He dies after having suffered all the agonies of dissolution; for this is a complaint in which, during the fit, there are the most overwhelming sensations and apprehensions of instant death.

Angina pectoris had passed unnoticed among practitioners, until Dr. Heberden published a description of it many years ago in the Transactions of the College of Physicians of London; since which many gentlemen of eminence in their profession have attempted to investigate its nature, and have obliged us with their observations, particularly Drs. Percival, Fothergill, Wall and Black. By many of them it has been judged spasmodic. The late Dr. Parry, who has published his sentiments on it, was of opinion, however, that it is in reality a case of fainting or syncope, and as differing from the common syncope only in being preceded by an unusual degree of anxiety or pain in the region of the heart, and in being readily excited, during a state of apparent health, by any general exertion of the muscles, more especially that of walking. The supposed cause of angina pectoris (for which he has thought proper to substitute the name of syncope anginosa) is referred by him to a diseased state (generally ossification) of the coronary arteries of the heart.

The rigidity of the coronary arteries thus induced may act, he thinks, proportionably to the extent of the ossification, as a mechanical impediment to the free motion of the heart; and though a quantity of blood may circulate through these arteries sufficient

to nourish the heat, as appears in some instances, from the size and firmness of that organ, yet there may probably be less than what is requisite for ready and vigorous action. Hence, though a heart so diseased may be fit for the purposes of common circulation during a state of bodily and mental tranquility, and of health otherwise good; yet when any unusual exertion is required, its powers may fail under the new and extraordinary demand. In conformity with this notion, Dr. Parry endeavors to show that the chief symptoms of the disease are the effect of blood retarded and accumulated in the cavities of the heart and neighboring large vessels; and that the causes exciting the paroxysms are those which produce this accumulation; either by mechanical pressure, or by stimulating in an excessive degree the circulating system; in consequence of which the heart, weakened by the mal-organization, readily sinks into a state of quiescence, while the blood continues to advance in the veins. After this quiescence has continued for a certain period, the heart may recover its irritability, so as again to carry on the circulation, in a more or less perfect degree, from the operation of the unusual stimuli; or death may at length ensue from a remediless degree of irritability in the heart. Such is Dr. Parry's theory.

In our opinion, the primary or original cause of angina pectoris in most cases is either ossification of the coronaries, or some organic lesion, (usually of an osseous nature,) existing at the origin of the circulation. In some instances an ossification, more or less complete, of the cartilages of the ribs, also accompanies this malady.

The disease in question has been considered by some German writers, as also by Dr. Darwin, as a species of asthma. Dr. Hosack, late Professor of the Theory and Practice of Physic and Clinical Medicine in the University of New York, is of opinion that the disease proceeds from fullness of the blood-vessels, more especially from a disproportionate accumulation in the heart and large vessels. The vast accumulations of fat, the effusion of water in the thorax, the distended state of the vessels, and even the bony deposits occasionally met with in the valves and vessels of the heart, he is induced to consider as the effects of such fullness.

We should always look on angina pectoris as attended with a considerable degree of danger at an advanced period of life, and where the paroxysms are frequent or violent; and it usually happens that the person is carried off suddenly. When it really depends upon an ossification of the coronary arteries, or any organic

lesion existing at the origin of the circulation, it is evident that we can never expect to effect a cure.

Treatment.—The treatment in this form of disease must necessarily be of the same kind as that for hypertrophy and other lesions of this organ, for there are probably few, if any cases, but what depend on some organic changes which are far the most part remediless. Our measures must be preventive when the paroxisms are absent; and our object will be to shorten the fit when it is present and protracted.

Now, the preventive measures are simple and obvious. The patient must be cautioned to avoid the exciting causes of the paroxysm; walking up hill, or against the wind, which has also been known to produce it. Whatever is likely to hurry the circulation, and therefore, among the rest, all mental emotion and anxiety, should be guarded against as much as possible. John Hunter died of angina pectoris; and the fatal seizure was brought on by a fit of anger. Care should be taken also to obtain and preserve a healthy state of the digestive organs. It is observable of this, as we mentioned before it is observable of other cardiac diseases, that they are often attended and aggravated by flatulence of the stomach and bowels. Persons laboring under a paroxysm of angina often experience great and sudden relief upon getting rid of a quantity of gas, by which the stomach had been distended. The flatulence acts, no doubt, by pressing the diaphragm upwards, and so diminishing the dimensions of the thorax, and impeding the play of the heart. It is upon the same principle that we must explain the fact, that the paroxysms are particularly apt to come on if the patient walks *soon after a meal;* also that they occur in the night, when he is in a horizontal position, and are relieved by his getting out of bed; that is, by his assuming the vertical posture, and taking off the pressure of the abdominal viscera from the diaphragm.

During the paroxysms of angina pectoris, the patient is to be laid upon the bed, hot bricks applied to the feet and sides; at the same time No. 6 and composition should be freely given, followed by the third preparation, or the pulverized seeds of lobelia, that a speedy emetic operation may be produced.

A reaction of the system will never fail to be established by the adoption of this course, if the malady has not reduced the strength beyond the influence of remedial agents. Particular discipline should be observed in regard to subsequent treatment, that perfect relief may be affected. Frequent steamings, frictions, and the

constant use of the tincture of lobelia, will be necessary aids in accomplishing this purpose to courses of medicine. This treatment will promote circulation in the limbs, determine to the surface, and thereby diminish the fulness of the heart and large blood vessels. A pill composed of the extract of the dandelyon, lobelia seeds, (unpulverized,) bitter root, cayenne, and golden seal, may be given to a good advantage.

The patient should sedulously shun every source of mental inquietude and irritation, and the circulation be vigilantly guarded from the influence of sudden gusts of passion. Moderate exercise in the open air, particularly on horseback, which will be preferable to walking, and not likely to bring on a fit, if the rider will be content with a moderate pace, should daily and regularly be taken, but no violent or continued corporeal exertion should be attempted; nor should rising ground ever be ascended on foot without the utmost deliberation and care. Plain food, easily digestible, and not prone to fermentation in the stomach, should be made use of in small quantities at a time, being carefully masticated, and deliberately swallowed.

When neuralgia of the heart occurs as it does sometimes, and might be mistaken for this disease, we shall find our third preparation of lobelia to be the best remedy to use, and it will afford great relief and often a perfect cure.

PERICARDITIS—INFLAMMATION OF THE PERICARDIUM.

Description and Causes.—In this chapter we propose to speak of the several kinds of inflammation of the pericardium, such as acute, chronic and rheumatic.

The pericardium is one of the serous membranes; so also may the endocardium be considered. But the pericardium is also a shut sac; and the primary effects of inflammation upon it are the same, *mutatis mutandis*, as upon the shut sac so near it, the pleura. The second series of effects is, however, much more formidable. Adhesion of the pleura does not necessarily abbreviate the natural term of the patient's life; adhesion of the pericardium always does; and effusion into the cavity that contains the lung is far less dangerous than effusion into the bag that surrounds the heart. In the one set of organs the mischief may be great, but it is *final*; in the other, it leads, with unfailing certainty, sooner or later, to

worse changes, which at length prove incompatible with the further continuance of life.

Acute inflammation may undergo the same changes which the pleura might undergo. Coagulable lymph may be poured forth from the entire membrane, and abolish the cavity by glueing the whole of the pericardium to the heart; or serous fluid may be effused, distending the bag of the pericardium, and keeping its smooth surfaces more or less asunder; or both serum and lymph may be effused together; or fibrin, in some shape or other, may be *deposited*, from the homogeneous fluid which is thrown out by the inflamed membrane in the first instance; and the result of this mixed effusion may here, also, as in the case of the pleura, be the *partial* adhesion of the membrane to the heart.

But in the majority of instances the inflammation spreads over the whole membrane, as it is apt to do in serous membranes generally; and one of these two things happens: either there is a large quantity of liquid effusion, which is not re-absorbed; and then generally the patient dies in a few days; or there is not much liquid effusion, or the liquid part is absorbed, and the pericardium becomes permanently agglutinated to the heart, and *apparent* recovery takes place.

In the cases that have proved fatal at an early period, when the inflamed membrane has been unadherent, it has been found to contain serous fluid; sometimes clear, oftener turbid, frequently tinged with blood; and it has been seen to be covered with a coating of the fibrinous or albuminous part of the blood; what we call plastic or coagulable lymph.

Such is the state of things on the *outside* of the heart in such cases. But what do we find *within?* Why, here also, in *all* cases *probably*, certainly in by far the majority of cases, we discover evident traces of active inflammation; and we discover them chiefly on the valvular apparatus. There does not appear to be such a tendency in endocarditis to diffuse itself over the whole membrane. Occasionally that naturally transparent portion of it which covers the muscular fibres is rendered whitish and opaque; and occasionally some of the deposits that are common on the valves, encroach also somewhat beyond them, and even stud, here and there, the interior of one or more of the chambers of the heart, and especially of the left auricle. But the valves or the fibrous rings from which they spring, are the parts first and chiefly implicated, especially the aortic valves, and the mitral valve; not uncommonly the tricuspid valve also; and sometimes even the

semilunar valves of the pulmonary artery. Inflammation thus affecting both the external and internal membranes of the heart, in acute rheumatism, we would call *rheumatic carditis.*

The inflamed valves appear under kinds of change, distinct from each other. They become thicker than natural; they lose their transparency and pliancy, and are puckered. These changes depend upon the deposit of lymph *beneath* the membrane; between the membrane and the fibrous substance it covers. Sometimes they are folded down, and glued, as it were, to the opposite surface. This must be by coagulable lymph deposited on the *outer* side of the membrane. But more frequently than all, they present more or fewer of those wart-like excrescences, or fleshy granulations which are of course *above* the membrane.

The etiology of pericarditis is by no means clear if we insist on a knowledge of its exciting causes. External violence or wounds, sudden suppression of the cataneous functions, have been followed by the disease; but even here there is no uniformity of effect from alleged causes. In a great majority of cases, pericarditis appears to be a consecutive disease, or it may be, as in the case of rheumatism, a co-existent one. Certain it is, that the phlogosis in question is met with oftener in acute rheumatism than under any other circumstance; and after this, in the order of frequency, comes Bright's disease. Of 33 cases carefully recorded and analysed by Dr. Taylor, 20 occurred in the progress of acute rheumatism; 1 was probably rheumatic; 10 were complicated with Bright's disease; 2 were complicated with some renal disease and empyema; 1 with some renal disease, but probably not Bright's disease; 1 with double chronic nephritis and encephaloid cancer of the bladder; 2 *may have been* complicated with Bright's disease; 1 was complicated with malformation of the heart and cyanosis; 1 proceeded from extension of inflammation from contiguous textures. We might divide the cases of Dr. Taylor, into groups; first, of those occurring in persons previously in good health, or actually labouring under some acute disease; and secondly, of those occurring in persons in bad health or labouring under some chronic disease. A remarkable and important difference is discoverable in these two groups in relation to the causes of the disease. For it appears, that of 16 cases belonging to the first group, all were complicated with acute rheumatism, and none (so far as is known) with Bright's disease; while of 23 cases, belonging to the second group, only one was complicated with acute rheumatism, whereas fully two thirds were known to be associated with Bright's dis-

ease. The chief causes of pericarditis are, therefore, inferably two in number, namely, acute rheumatism and Bright's disease. In showing the etiological relation of this last affection to pericarditis, Dr. Taylor has made a decided advance in pathology, beyond his predecessors and cotemporaries. This gentleman enters into some arguments to show that acute rheumatism and Bright's disease owe their power of inducing pericarditis to the same kind of ultimate cause, namely, an alteration in the composition of the blood.

Pericarditis and endocarditis of a rheumatic character may occur primarily in one person from the same causes which in another would give rise to articular rheumatism; or they, as well as rheumatism in other parts, may be the consequence of the articular variety.

M. Bouillaud, who has paid most attention to pericarditis and endocarditis, as connected with articular rheumatism, asserts that in eight cases out of nine the latter affection is accompanied by one or both of the former. In another estimate made by this writer the proportion is not so great; out of ninety-two cases recorded by him there were thirty-one in which pericarditis and endocarditis coincided with articular rheumatism, viz: seventeen of pericarditis, and fourteen of endocarditis. In 72 cases noted by Hache and others, there was concurrent rheumatism sixteen times; being almost a fourth of the whole number.

Dr. Williams corroborates the views of M. Bouillaud, in regard to rheumatism being by far the most common cause of pericarditis, adding, "but it still more frequently produces endocarditis;" and although he does not think these inflammations are essentially a part of rheumatism, he can confidently state that he has found signs of endocarditis or pecariditis, or both to a greater or less extent, in fully three-fourths of the cases of the disease in question. He adds, that in a little more than half of the proportion just stated, there was no complaint of pain in the chest, palpitation or dyspnœa. Dr. Macleod makes the proportion one-fifth. Dr. Hope states that acute rheumatism had preceded about three-fourths of the worst cases of valvular disease and adhesion of the pericardium four hundred in number, which have occurred among upwards of ten thousand hospital patients.

Diagnosis.—Acute Pericarditis is, of course, attended by more or less pyrexia. There is a pain in the region of the heart—sometimes severe and lancinating; generally darting through to the left scapula, upwards to the left clavicle and shoulder, down the

arm a certain way, and (what is remarkable) rarely extending quite so far as the elbow. The pain is increased by pressing forcibly upon or between the ribs and cartilages over the heart; and by pressing, with the points of the fingers, upwards against the diaphragm, under the cartilages of the left false ribs; frequently even by pressing the epigastrium and left hypochondrium in the usual manner. The pain is often increased on inspiration, and by lying on the left side. Patients in general lie most easily upon the back. The respiration is rapid; but less so than in affections of the lungs. There is sometimes a cough, which is dry. Nearly always palpitation, frequently violent, at least upon exertion.—Sometimes, though more rarely, a disposition to syncope.—The pulse varies exceedingly. It is necessarily quick; and often, but not always, small, in proportion to the heart's action; and only sometimes intermittent and irregular; neither is it always hard, or even very full. . The countenance is described as anxious, and the features contracted; but this happens only when the pain is acute; and it is equally the case in pleuritis.

On examination by the ear, the *whole* heart is found acting more forcibly, and with a clearer sound, than in health. But this is all. Auscultation, however, appears to be of negative use.—We do not discover the loud murmur of the sonorous or sibilous rattle of bronchitis, the crepitous rattle or obscure respiratory murmur of the pneumonia, or the œgophony of the pleuritic effusion, unless these diseases are combined with the pericarditis. Neither have we the partially excessive or defective impulse or sound, or preternatural sounds of organic diseases of the heart. In all uncombined cases, therefore, light is thrown on the disease.

M. Collier says, that the action of the heart is accompanied by a sound resembling that of new leather. Laennec does not mention it; but remarks the occasional occurrence of a sort of click, which some persons mistake for a "bruit desoufflet."

At an early stage of the disease, inflammation of the pericardium often gives rise to considerable serous effusion. In consequence of this, the impulse of the heart diminishes, and the sounds become feebler and more distant. Percussion also yields a dull sound, over a larger space than natural, in the region of the heart. This dulness may commonly be detected at a pretty early stage; and although at first, perhaps, dependent upon mere turgescence of the heart; soon becomes more marked in consequence of the effusion, of which it marks the limits. Frequently, also, by careful examination, we may discover a circumscribed fullness or ele-

vation of the chest in the same region, where at the same time the respiratory murmur is no longer heard. Of course, in those cases where lymph only is effused, or where the amount of serum is quite small, the above combination of physical signs is not met with, and the impulse of the heart may remain strong throughout, accompanied by a corresponding strength and hardness of the pulse. The compression of the heart, on the other hand, by a considerable quantity of fluid, sufficiently accounts for its feeble and irregular action in certain cases, as well as the corresponding characters of the pulse and general symptoms, the faintness, dyspnœa, etc.

The symptoms, then, of pericarditis, as set down by authors, and such as we have ourselves frequently noticed, are the following. There is often, very early in the disease, a singularity of manner, and peculiar expression of countenance, difficult to describe, yet strikingly manifest to the observer; a strangeness of deportment mixed somehow with an aspect of distress. A sense of oppression at the epigastrium; a catch in the breathing; a dry cough; inability or unwillingness on the part of the patient to lie on his left side; pain in the situation of the heart, increased by a full inspiration, by pressure upon or between the corresponding ribs, and more particularly increased by pressure upwards against the diaphragm by means of the fingers thrust beneath the cartilages of the false ribs; stiffness and pain in and about the left shoulder, and extending thence down the left arm, and stopping short perhaps at the elbow or wrist. This last circumstance, however, the pain shooting down the arm, is more common in *chronic* affections of the heart. And we have yet another symptom to mention, and a very important one; and that is delirium, sometimes quiet, but often wild and furious delirium, not dependent upon any disease of the encephalon.

Of course there are also the febrile symptoms which accompany the acute rheumatism; or if the pericarditis occur independently of accute rheumatism; there will be fever symptomatic of the local inflammation.

Chronic pericarditis gives rise to modifications of the same symptoms as the acute; except, that they are less marked, and, consequently, more difficult of detection. They resemble, on the whole, those of hydro-pericarditis and of organic disease of the heart. Pain is generally present, which may be constant, or occur at intervals, and be accompanied by palpitations and more or less dyspnœa. The pulse is usually very frequent, and may be

more or less irregular. Where effusion has taken place, this will be indicated by the signs described under acute pericarditis; and it is considered to be a symptom of adhesion between the pericardium and the heart, when there is a kind of abrupt, undulatory, jogging or tumbling motion of the organ, on placing the hand or ear below the part where the heart strikes in health.

The physical signs are similar to those of acute pericarditis, of which it is commonly a sequel.

The disease generally terminates fatally, or it may end in organic disease of the heart.

There are some other symptoms that we must not omit to mention as occurring in some cases of pericarditis. There is a very strong purring tremor felt by the hand placed upon the region of the heart. This is not a constant, nor even a frequent symptom; but it has a certain degree of corroborative value when it does occur.

When the fluid products of the inflammation predominate, when there is much serum poured out, the symptoms, as well as the danger, will be different from those which are remarked when there is not so much serous liquid. If the pericardium be distended, percussion will furnish a dull sound over an unusually large space; much beyond the natural limits of the precordial region; and you may often measure the amount of the effusion, and its daily increase or decrease, very accurately in this manner. But the general symptoms will vary also. The pulse will be feebler, and more disposed to falter and to become irregular, in proportion as the liquid effusion is large; and at the same time the patient will frequently be fixed in one position, and unwilling or afraid to change it, lest that small exertion should further excite the action of his heart, and hurry his respiration. He will lie, perhaps, always upon one side; or he will remain immovable on his back, with his head elevated; or he will sit up continually, with his body leaning forward; and he will not dare to alter his posture. But when the solid products of the inflammation predominate; when there is coagulable lymph, and but little serum; when the pericardium, instead of being distended, becomes attached to the heart; then the pulse will retain that force and regularity with which the disease commenced, the dull sound yielded to percussion will not transgress the precordial limits, and the patient will not in general experience any absolute necessity of accommodating his body to one constrained position.

Of a merely adherent pericardium there are no diagnostic signs

to which we can trust, either ausculatory or general. None presented by the body at the time. If we are accurately acquainted indeed with the history of the patient's disease, and if we know that, at any time, a *to and fro* sound existed, which *to and fro* sound soon ceased, and has never recurred; then our conclusion that the pericardium is adherent will scarcely be open to any source of fallacy.

When the opposite surfaces of the membrane have been once united, they never separate again; the adhesion remains for life. But the lymph interposed between them, if the inflammation be not removed, becomes less and less thick; until at length, in some cases, a mere layer of firm, but thin, areolar tissue is left, through which the heart is visible.

Treatment.—We need not inform our Reform Physicians that the principle, and we may say only remedies used by the Allopaths are such as we totally discard. Bleeding, Mercury, blisters, tartarized Antimony, etc., are the main dependence in this affection, but the absurdity and absolute injury of this treatment are seen in the results of the practice without recurrence to our philosophy to disprove it.

But while we thus deny the efficacy of the Old School remedies, have we any in our own practice that will prove efficacious? We are free to acknowledge that we are here, as in other heart affections, still in need of some remedial agent to act upon that organ. We have only to act constitutionally. In fact, the Allopathic course of treatment is founded on these principles, and the trouble is, that the poisonous and depleting course acts too powerfully upon the "constitution," and the patient sinks under the remedies rather than the disease. They cannot benefit the patient by any mode of treatment better than that of our course of medicine often repeated and long continued, viz: the emetic, the vapor bath and mild purging. If this simple course fails, we think there will be no occasion to try the heroic remedies of Allopathy, for Dr. Watson remarks as follows, concerning the success of one who had boasted of cures:

"There can be no use in deceiving ourselves in this matter; but we may very easily deceive ourselves. In a large proportion of cases, whether they be treated well, or ill, or not treated at all, the patients will *seem* to recover. But I say that the recovery is so far unreal, that it involves the germ of future destruction. If any of you have read Bouillaud's heavy, yet instructive work on the diseases of the heart, you will know that he boasts of the success

of his treatment in acute pericarditis. He declares that by the bold use of the lancet he *extinguishes* the inflammation; jugulates (as he calls it) or slaughters the disease at its birth; and restores the patient to the full condition of health, or to the state in which he was before the disease came on. You must hereafter, judge of this question for yourselves; but it is my duty to caution you against crediting these statements. Not that I would insinuate a doubt of M. Bouillaud's veracity; but I believe that he has been deceived by false recoveries; and I would not have you beguiled by his representations, into the indiscriminate adoption of that "enlightened hardiness" which he endeavors to inculcate.

Frequent bathing and friction upon the cutaneous surface is of the greatest benefit, for if a good termination is kept up to the surface, the heart will be relieved. Let the patient during an attack of this disease, drink freely of a tea made as follows:—

R.—Asclepias Tub. (Pleurisy Rt.)	oz.	1
Sanguinaria, (Blood Rt.)	grs.	50
Lobelia Inf. (Lobelia,)	"	50

Mix in one pint boiling water; after it is well digested, take one half ounce every hour. This will keep up a general perspiration and afford relief.

THORACIC ANEURISMS—DILITATION OF ARTERY.

Description and Causes.—The aorta is very frequently found diseased, and its disease is a common cause of organic changes in the left ventricle of the heart. You will find that its inner membrane, instead of being smooth, and of a uniform yellowish-white color, is rendered very uneven by a great number of yellow opaque projections, of cartilaginous consistence, lying immediately beneath the membrane. And in a more advanced stage of the same diseased condition, you may perceive that some of these projecting little masses consist of irregular scales of bone, having sharp edges; and sometimes these plates of ossific matter are quite bare; the inner membrane is gone, and the exposed bone is washed by the current of blood. Now the necessary effect of these changes is to diminish and destroy the natural elasticity of the vessel; and as there is a perpetually recurring strain upon it, by the blood sent out from the heart, the vessel dilates—becomes

larger than it should be. This you may call aneurism; but a simpler name is dilatation. In other cases, the enlargement is not general, but partial. A pouch is formed on one side of the artery, and this pouch may be very small or very large. It appears to result from the giving way, the rupture in short, or the ulceration of the inner and middle coats of the artery, and then the blood, passing through the broken part, presses against the cellular coat of the vessel, and distends it into a sort of bag. There have been curious discussions as to what should be called true aneurism, and what should be called false aneurism; discussions upon which we have neither time nor taste for entering. It is enough for all practical purposes to state, that the artery sometimes dilates only, sometimes throws out a pouch.

Most commonly the aneurismal tumour goes on enlarging; and often it becomes lined, and sometimes it is nearly filled up by layers of coagulated blood, which form in its interior. At length the tumour bursts, and the patient perishes.]

Aneurisms of the thoracic aorta are met with chiefly in the earlier portions of that vessel, in its ascending part and in its arch. There seem to be two reasons for this. One is, that the diseased state of the coats of the artery (to which the rupture and subsequent aneurismal pouch, or the dilatation, as the case may be, are owing) is more common, and more advanced generally in that part of the aorta; and another reason is, that the momentum of the blood, as it is forcibly propelled from the left ventricle, is sustained chiefly by the same part.

Mere disease or dilatation of the commencing aorta affords a physical impediment to the due emptying of the left ventricle. It is a common cause, therefore, of hypertrophy and dilatation of that ventricle; and, consequently, the *signs* of hypertrophy and dilitation of the left ventricle of the heart will at length result from disease and enlargement of the aorta near its mouth.

When aneurismal pouches form, as they often do, at the very entrance of the aorta, or in the coronary arteries, they often defy detection. We, at least, know of no sign of their existence upon which a physician can rely, or which can lead him even to suspect such a state of matters. But all at once the patient drops down dead; and upon searching for the cause of this sudden extinction of life, you find the pericardium distended with blood, and the source of that blood you find to be the ruptured aneurismal pouch, so near the root of the aorta as to project *within the pericardium*.

The effect of aneurismal enlargements of the artery in caus-

ing *absorption* of the neighboring tissues, upon which the tumor presses, is very curious. You know that even the solid bone is removed, worn away as it were, before an advancing aneurism. Hence it not unfrequently happens that the trachea, or some of the larger bronchi, are at first flattened, and then give way; the aneurism breaks into the air-passages; and the patient, overwhelmed by a torrent of blood into and from his lungs, perishes in a few seconds. Or the tumour may contract adhesions with the pulmonary tissue, and destroy it to a certain extent, and *so* cause mortal hæmoptysis. But such cases are not always *fatal at once.*

Again, according to its situation and extent, an aneurism of the thoracic aorta may press upon the œsophagus, and cause the ordinary symptoms of stricture of that tube. Hence cardiac disease, and pulsation within the chest, accompanied at length by the signs of a constricted œsophagus, form strong presumptive indications of the existence of an aneurism; and in such cases, the œsophagus may at last ulcerate through, and then copious and fatal hemorrhage ensues. Hæmatemesis it may be called, though the blood is vomited not from the stomach, but from the gullet.

But aneurism of the thoracic aorta may exericise its pressure in another quarter, and wear away the bones of the vertebræ, and cause pain in the back, and ultimately palsy of the parts below that portion of the spinal cord; so that pain in the back, with pulsation, may justly awaken suspicion of aneurism making its way backwards.

Another consequence of an enlarging thoraic aneurism, sometimes observed, is pressure upon the *thoracic duct*, causing engorgement of the absorbent vessels and glands, and inanition.—In short, whatever parts the aneurism may reach, and subject to its pressure, may have their function thereby suspended or disturbed, or their structure spoiled.

The causes are not clear. Those enumerated are—hypertrophy of the heart; the isolation of the vessel; the frequency of accidental productions in its parietes; tight clothing; intemperance; moral emotions; and whatever augments the activity of the circulation. It is probable, however, that some nutritive change takes place in the parietes of the vessels themselves, so that they are predisposed to aneurismal dilatation; and, when this is the case, the causes, above enumerated, may act as excitants.

Diagnosis.—In aneurism of the arch, we meet in many instances (eight out of twelve) with a peculiar knotty or congested

state of the veins, either of one or both upper extremities, or of the superficial veins of the chest, appearances indicative of pressure on some internal vascular trunk. In some cases the veins were so turgid as to resemble hard cords, and pressure did not obliterate them. The color was in general blue, but in one case it had assumed a darker or purplish hue. Bleeding did not notably diminish the tension of these veins, and the flow of blood from them was not always readily stopped. The stasis of blood has been found to be so great in some cases that its temperature has sensibly diminished, and a separation of the fibrin has taken place during life within the vessels. The movements of the thoracic parieties undergo important modifications in cases of intrathoracic tumour, as in aneurism of the arch of the aorta. The phenomenon most usually observed is non-expansion of one side of the chest, in ordinary or during forced inspiration; and depends on pressure on the corresponding bronchiæ. When the trachea itself is compressed, and when the sac is large, the upper third of the entire chest exhibits a comparative immobility in the act of respiration, and abdominal respiration is strongly marked during the paroxysms of dyspnœa. A feature of an opposite nature attends the disease, viz: an abnormal movement which, though sometimes very slight, can be discovered very early in the disease. It consists of a diffused expansive motion perceptible under the upper portion of the sternum, or above or below the clavicles; it is sometimes accompanied by a distant shock or impulse. This symptom may be made more evident by making the patient walk for a short time, so as moderately to excite the circulation without rendering the respiration tumultuous; and then when he stands and holds his breath, to run the eye across the infra and supra-clavicular regions, and over the superior portions of the sternum. A forward movement, arising from a force in the interior, distinct from that of the heart, is then clearly perceived.

Serious infiltration of one of the upper extremities frequently follows the pressure of aneurismal tumour, and appears after the turgescent state of the veins has existed for some time. The same appearance may exist in both upper extremities, and even in the lower, when the disease has lasted a long time, or when the sac is large, and the constitutional disturbance severe. As anasarca also ensues in valvular disease, the safest general rule is, that in valvular disease partial anasarca is rare, and in aneurism common. Except in the pericardium there are seldom se-

rous effusions into the serous cavities. Coma from effusion into the ventricles of the brain is not uncommon, however, in aneurisms of the arch.

The general *symptoms* are, first, dyspnœa. This exists in greater or less severity, in all the cases. It comes on gradually, is progressively increased, and finally ends in orthopnœa. It is chiefly at night that the patient is roused from sleep, in all the terrors of impending suffocation. Lying on the back either induces a paroxysm, or increases its violence. Even attempts at deglutition will sometimes bring on a paroxysm. The dyspnœa seems to be independent of atmospherical changes; and in the duration of its attack, does not exceed a period of two hours. A stridulous sound heard during inspiration, occurred in eight of the twelve cases, analysed by Dr. Greene, sometimes in ordinary but more frequently during forced respiration. The inspiration is prolonged, and the sound generally rancous and deep-toned. The difficulty of breathing is mostly referred to the inferior part of the trachea.

When a certain size is attained by an aneurism of the ascending aorta, a tumour is usually formed at the fifth and sixth ribs of the right side; when at the anterior part of the arch, the tumour is at the third and fourth of the right side; when at the superior part of the arch, it is above the sternum and clavicles.

There is frequently cough, with mucous and bloody expectoration; dysphagia, dyspnœa, attacks of spasmodic suffocation, pain in the right shoulder, axilla, inner side of the arm in the course of the nerves (which may be tender), and up the right side of the neck and head. Pricking pains may be felt in the tumour.

Previously to the appearance of any tumour, there may be no sign of disease; or the signs which present themselves may be very uncertain; and persons continually perish of aneurismal rupture of the aorta, apparently in perfect health. Laennec declares the diagnosis to be difficult, and confesses that he had frequently not suspected the disease when it existed, and suspected it when it did not exist.

Violent pulsation of the carotids has created a suspicion of the disease; but may arise from mere excitement of the heart, hypertrophy of the left ventricle, dilatation of them, or from any obstruction to the course of the blood in other directions—as in the descending aorta or the subclavians. Dullness of sound on percussion of the superior sternal portion of the chest, and to the

right of that spot, as well as smallness and irregularity of pulse, arise from many causes. A bellows-sound or a thrilling sensation, given to the hand only or chiefly when applied *above* or to the right of the cardiac region, may justly give a strong suspicion of the disease. But neither the bellows-sound nor the thrill always occurs. Laennec never observed the thrill before the tumour had become visible externally.

Laennec, however, considers that the chief diagnostic sign of an aortic aneurism, is a strong and *single* pulsation, discernible by the ear in the region of the aneurism, synchronous with the pulse at the wrist, stronger and louder than the action of the ventricles, and unaccompanied by the sound of the auricles. In three instances of aneurism of the aorta under the sternum, he was (according to Bertin) mistaken, but would not have been, Bertin contends, had he applied the stethoscope over the sternum. Bertin asserts, that whenever an aneurism of the aorta exists, as well as of any other artery, a strong single sound may be perceived in it, distinguishable also from the beating of the heart by its greater intensity; and he maintains, that if the stethoscope is applied *upon the sternum*, in aneurism of the substernal aorta, the disease may be recognised with facility before it is visible, and that Laennec does not appear to have applied the instrument in this situation. Bertin discovered the disease in two cases in which there was no tumour. Aneurism of the descending aorta, he considers, may be recognised by the same phenomenon at the pectoral spine.

The aneurismatic pulsations (Bertin adds) are so peculiar, intense and sharp, that they cannot be described, and a person who has once heard them can never mistake them.

Such are the symptoms of aneurism of the thoracic aorta. When the *abdominal aorta* is concerned, and the aneurism is of a small size, no symptoms may indicate its presence. When larger, a tumour can at times be detected by careful examination, which affords pulsations isochronous with those of the heart, and occasionally a distinct bellows-sound may be heard. It must be borne in mind, however, that any tumour of the abdomen which lies upon the aorta may be the medium of communicating the pulsations of the artery to the hand placed on the abdomen. Feculent matter detained in the folds of the colon, or gas pent up in the intestine, may stimulate aneurism, and excellent observers have been deceived in this way. Pulsations in the epigastrium may, also, like palpitation, be dependent upon nervous

causes, and occur in paroxysms, in dyspeptic persons, from mental emotions, etc.

Unusual abdominal pulsation can, therefore, only be regarded as a symptom belonging to various morbid conditions. It is sometimes the cause of great distress with thin, nervous persons, under the apprehension that it unequivocally indicates the presence of aneurism of the abdominal aorta.

As the tumour augments in size, it cannot fail to interfere with the functions of the abdominal viscera, and with the proper circulation of the blood; hence arise various dyspeptic symptoms, infiltrations into the peritoneum, lower extremities, etc. When the aneurismal tumour gives way, the blood may be poured into the cavity of the peritoneum, or, through adhesions, into the stomach or intestines.

Treatment.—It is unnecessary to state here as we have in treating of other organic lesions that very little relief can be obtained by medication. The application of pressure to the artery above and upon the tumor *where it can be reached*, has, in many cases, proved successful. Watson gives us the following directions as palliative.

"What can we do in these melancholy cases? Not much. Certain points of practice are so obvious that it is almost superfluous to mention them. We mean the observance of quiet, and the religious avoidance of every thing likely to excite or quicken the circulation; bodily exertion, there; straining of all kinds; mental emotion; stimulating food and drink. These are not only likely to aggravate the existing mischief, but prove often the immediate cause of the rupture of the aneurism, and of sudden death.

I mentioned, in describing the morbid anatomy of aneurism, that when the diseased vessel begins sensibly to dilate, and more especially when it was protruded into a sack or pouch, the blood begins to coagulate upon the diseased membrane. And it continues to do so, from time to time, in successive layers, so that upon dividing the aneurismal sac, you will see concentric laminæ of firmly coagulated blood. This is clearly a strengthening of the weak place—a reparatory and compensating process analogous to others which we have already had occasion to notice. And our object, here as in other cases, must be, not to interfere with the natural attempts towards repair, but to assist and promote them, if we can."

This principle has long been distinctly recognized in the treatment of anuerisms that are incapable of relief by surgical means.

Nothing is so much recommended by the old authors as blood letting, but medical Reformers, should on no account, be guilty of this practice, for where pressure fails, you may be sure that bleeding will not cure.

You should enjoin perfect rest and deprive the patient of all impure stimuli, or every thing that will excite the pulse.

The tumour may be kept constantly wet with Anthemis Cot. (Dog Fennel) Lobelia Inf., and wormwood simmered in vinegar; a little salt may be added. A purgative to be given about twice a week; and, when the pain is very severe, an emetic, to be administered. When the pulsation and pain are great, rub on the parts a strong decoction of Arnica Flos. (Arnica Flowers) digested in alcohol, until the pain ceases. Compresses in some cases may prove beneficial. As a spontaneous cure is effected by a rupture of the external coat of the artery, thus diffusing the blood into the cellular substance, would it not be advisable, under some circumstances, when other means fail, to *puncture* the coat of the sac or tumour with a needle, and thus, in imitation of nature, let out the blood when the pulsations and pain cease? When the coat bursts it is accompanied by a loud report. The blood is diffused into the cellular substance, and callus or hardness closes the artery. The blood circulates by the anastamosing or lateral branches, as in amputation.

PHLEBITIS—INFLAMMATION OF THE VEINS.

Description and Causes.—The first effect of inflammation of a vein is to impede, or arrest, the passing blood, which, coagulating upon the inflamed surface, adheres to it. In some instances the inflamed coat of the vessel is merely (as Mr. Hunter said) furred over: in others its channel is completely dammed up. The obliteration of a small vein in this manner can seldom have any serious consequence; but much suffering, and distress, and even death itself, may result from the sudden and continued obstruction of one of the large venous conduits. For example, the painful disorder, called *phlegmasia dolens* is caused by a stoppage of the blood in the *femoral* vein. A similar arrest of its current in the *sinuses* of the brain, is a mortal change.

This adhesive form of phlebitis is a local disease. Whatever ill effects it may produce are purely mechanical; and depend upon

the closure of the canal. If the organ mechanically affected by it be not a vital organ—if the system can await the development of a collateral venous circulation—all, at length, may end well.—Sometimes, indeed, as the inflammation gradually subsides, the coagulum is softened and partly reabsorbed, the blood drills for itself a fresh passage through the centre of the plug, and the circulation is restored to its accustomed channels.

This is, fortunately, the commoner form of phlebitis; but sometimes the inflammation advances beyond the adhesive, and into the suppurative stage. Even then the disase may remain a local one. The adhesive process may bound and isolate the suppurative in both directions; and an abscess in the part is then the usual result.

But if the suppurating surface of the vein be not so shut off, and pus mingle and circulate with the blood, the disorder is no longer merely local. The contaminated blood is conveyed to distant parts, and the whole system tainted. The malady has become general, and of the most formidable character.

It had long been noticed, as a matter of fact, that collections of pus were not uncommon in various parts of the body, when death had followed mechanical injuries, or great surgical operations. Abscesses in the liver, in particular, were known to be associated with mortal fractures of the skull. Very fanciful reasons were assigned for this coincidence. By degrees it was ascertained that these scattered collections of matter—occurring most commonly in the lungs and liver, but not unfrequently in or near the joints also, in the serous cavities, among the muscles, in the brain, in the eye, and elsewhere—were connected with the introduction of some vitiating secretion, and especially of pus, into the current of the venous blood.

And this step having been gained, fresh speculations arose, concerning the manner in which the internal collections of pus were formed. In the viscera they were usually small, well defined, surrounded by the healthy tissue of the organ, and several in number. Some maintained, that the pus, in substance, was carried to the part in which it was found, and there simply deposited. Others were of opinion that the tainted blood created in the system a general tendency to inflammation, which was developed in many places simultaneously. Neither of these suppositions was quite true, neither of them quite false. The pus discovered in the serous cavities was accompanied by unequivocal traces of inflammation in those parts. This alone rendered it probable that the smaller purulent collections were not merely dropped there by the

blood in its course, (a thing very difficult to conceive,) but were the products of actual inflammation, excited somehow in those very spots. And it is now believed that these abscesses *of*, as well as *in*, a part, proceed from suppurative inflammation, provoked by the presence of particles of pus, brought thither with the circulating blood.

Foreign substances, entering the blood, and failing to pass out of it again through the natural emunctories of the body, are liable to be stopped when they arrive at the first network of capillary vessels that lie in their course. Now the blood, circulating in the veins, reaches (much of it at least) in each of its circuits, two such great networks, the hepatic and pulmonary. Through the pulmonary network all the blood must pass, through the hepatic some of it; and it is there, in the capillary tissue of these organs, that particles of pus, and other material substances, foreign to the blood, and incapable of elimination with the customary excretions, are apt to stick, or to be entangled, and to excite inflammation. Some of them, however, in general, pass on, and arriving at the left side of the heart, are transmitted, with the arterial blood, to various parts of the body, there to exercise a similar deleterious influence.

Such was, and is, the theory: and it has been tested and confirmed by direct experiment. Inasmuch as the conveyance of the *pus* cannot be traced by the eye, nor the manner of its being collected into an abscess demonstrated, except by inference, Cruveilhier introduced *quicksilver* into the veins of animals; a metal which is liquid, and divisible into very minute particles, and which exerts no chemical agency upon the vital fluid. When the mercury was inserted into the veins which concur to form the vena portæ, the whole, or the greater part of it, was arrested in the liver. In that organ, the animal being killed, a certain time after the introduction of the metal, small, roundish, red spots were always discoverable, which passed gradually into little abscesses surrounded by a halo of inflammatory redness; and in the centre of each red spot, and of each abscess, lay a minute globule of mercury. A few similar points of suppuration were usually to be seen in the lungs also. But when the quicksilver was put into the blood in its direct course towards the vena cava, then it was in the lungs that these points were either exclusively detected, or at any rate most numerous.

You perceive how strictly these experiments bear upon the rational humoralism acknowledged at the present day. If pus, and mercury, may thus be distributed to particular organs, and thus

excite circumscribed inflammation, so doubtless may other extraneous impurities—introduced by the poison of what is called good living, by the respiration of foul air, and in various other ways—reach and settle in different parts of the body (the liver, the lungs, the kidneys, the joints), and there produce, if not inflammation and pus, yet such changes at least as spoil the texture of the organ, and pervert its healthy office. That cancer is propagated in this way we have reason to believe. In all probability the deposition and increase of tubercles fall under the same law. There is, however, this remarkable difference between tubercles and phlebitic abscesses, that the former occupy chiefly the upper portions of the lungs. while the latter are generally most numerous in their lower lobes.

Suppurative phlebitis—with all its horrible effects—is liable to arise, not only after severe but also after slight injuries; from the trivial as well as the grand exploits of surgery; nay, spontaneously, as it were, without any local hurt, under the agency of natural causes, such as exposure to cold. And the part in which the phlebitis occurs has some influence, as you will now understand, in determining the principal seat of these scattered abscesses. When they succeed amputation of a limb, or fracture of the skull, or the interference of surgery with varicose veins, or (as they may) even the simple operation of phlebotomy, they are likely to be most numerous in the lungs. But they are more conspicuous to hasty observation in the liver than in the lungs; and that is why hepatic abscess was supposed to have some special connection with injuries of the head. Morgagni, however, long ago pointed out the fact, that other parts also were affected in those cases. Again, we may expect to find these disseminated abscesses chiefly in the liver, when suppurative phlebitis occurs in any of the tributary veins of the vena portæ: when it supervenes, therefore, upon operations on the bladder or on the intestines—operations for the removal of stone, for the release of hernia, for healing fistula in ano, for the cure of piles.

Phlebitis is rarely idiopathic, but most generally it is owing to physical causes. Thus, phlebitis of the limbs proceeds from external violence, contusion or laceration of a vein, or puncture with a rusty or unclean instrument, as in venesection or in dissecting, also after amputations. In fact it may occur after all great surgical operations and extensive sores, whenever there is extensive suppuration in the neighborhood of veins that remain patulous when wounded, either owing to anatomical situation, as in the

instance of the veins of the diploe, of the axillary veins, of those within the uterus, within the liver, etc., or to some morbid change of structure consequent upon inflammation, varicose distention and the like, or lastly to the surrounding cellular tissue thickening, assuming a lardaceous character, and thereby keeping the parietes of the veins upon the stretch. This is the reason why phlebitis is so frequent and so fraught with danger after wounds of the head, and after the operation of lithotomy; and also why phlebitis artificially induced, for the purpose of obliterating varicose distentions, so readily spreads to an alarming extent when once it gets beyond the adhesive stage.

Diagnosis.—The symptoms are local and general. The inflamed vein is the seat of pain in a greater or less degree. If the vessel be superficial we can feel a hard cord, of a red color and unequal surface; if deeper seated, we only feel a kind of distension with some resistance, which corresponds with the course of the vein, and of the pain to the patient. The diseased part is with difficulty moved, and there is, if the vein be of any considerable size, edema proportionate to the interruption of the circulation.—To these local symptoms are joined, afterwards, general uneasiness, headache, want of appetite, thirst, and febrile re-action, which may be either continued or remittent. The inflammation may be limited to a particular region; but more commonly it extends to new parts following the course of the blood in the veins, that is towards the heart; although sometimes it takes a different direction and implicates the ramifications of the vein first affected. After a few days, when the blood has become altered by the purulent matter, new symptoms arise, which constitute the second period of the disease, that of *infection.*

The patient now experiences chills at irregular intervals, but sometimes recurring periodically, and followed by a dry and hot skin and often copious sweats: he is agitated, tormented by fantastic imagery; his ideas are somewhat confused, and at last continued delirium sets in. The face is shrunk, pale or of an earthy hue, and yellow; the features indicate apathy and loss of intellect; the eyes are encircled with a blue streak; the tongue is dry and dark and trembling; there is often a fetid diarrhœa; the pulse is small and weak and the strength entirely gone. In this period we see break out in different parts of the body, such as the cellular tissue, or in the thickness of the muscles, those abscesses already spoken of. In some, jaundice supervenes, and coincides with lobular abscesses of the liver. Others complain grievously

of violent terebrating pains in the joints, which are now most generally filled with pus, while, again, others are attacked with acute pleurisy, or are taken with a dry cough, oppression and dyspnœa; symptoms referable to the formation of lobular abscess in the lungs. Under an aggravation of the disease by these lesions, the patient sinks at the end of the third week. If the issue is to be favorable, there is a gradual diminution of the local and general symptoms before the coming on of the period of infection.

Although the constitutional symptoms of phlebitis are the same, wherever may have been its seat, yet there are some differences in the local symptoms. Those previously described were applicable to phlebitis of the limbs; but in inflammation of the splanchnic veins, such as of the vena cava, vena portæ, the iliac, the hypogastric, etc., the local symptoms are wanting. Still if these veins be entirely obstructed, we may expect to see serous effusion in the limbs, the parietes of the trunk or in the abdominal cavity, symptoms which, taken in connection with the general ones of infection will enable us to diagnosticate the nature and even seat of the disease.

The local phenomena, when a superficial vein of some magnitude is inflamed, are pain and tenderness in the course of the vessel, which, in the adhesive variety of the complaint, is soon converted into a tangible, hard, and sensitive cord. Whether the vein be near the surface or deeply seated, there is usually more or less œdema of the areola tissue of the part. Phlebitis of this kind has been sometimes confounded with inflammation of the lymphatic absorbent vessels. You distinguish the latter by the slenderness of the painful cord; by its position, which is still more superficial than that of a subcutaneous vein; by the number of little knots which diversify its course; and by the streaks and patches of bright inflammatory redness which appear along the same track. Dr. Graves remarks that inflammation of the lymphatics "is seldom continuous, but is developed at certain insulated points."

In the suppurative form of phlebitis the general symptoms take the lead. The formation of pus in separate and often distant parts is rapid, and frequently unannounced by any local pain.—When, however, the joints, or parts near the joints, are the seat of suppuration, much soreness is complained of, and the malady is liable to be mistaken for rheumatism; and when the serous cavities are implicated, the pain is sometimes severe. Suppurative

phlebitis is commonly attended in its progress with repeated shiverings, and with profuse sweats, and occasionally with copious and very unnatural discharges from the bowels. These last have been noticed in animals soon after the introduction of pus, or of putrid matters, into their veins. Nature seems to attempt to eliminate the poison in this way: and where the quantity of pus so introduced has been small, the attempt is now and then successful. But in general there is a continual supply of the noxious substance, and the system is irrecoverably infected. Typhoid symptoms occur in most cases, but not in all. Very constantly there is great agitation, and a marked disturbance of the nervous system.

Treatment.—In this disease the vapor bath must be very often applied; the inflamed vein through its whole length must be covered with bitter herb fomentations. To produce relaxation and equalize the circulation, the Lobelia emetic must be frequently used. Stimulating liniments will also be found very beneficial.

To prevent the absorption of pus, the vein has been compressed immediately above the seat of the injury or the inflammation.

If the disease is that which is called *phlegmasia dolens*, or an inflammation of the large veins of the leg, the hip bath or local vapor to the limb will be excellent together with such other treatment as the situation of the patient may demand from the circumstances of the case. If it is consequent upon parturition, let the Female Bitters be given as soon as the febrile symptoms have been subdued by the above treatment. Injections per vagina will be generally indicated and perfect cleanliness enjoined.

Give occasionally a cathartic, and promote moisture of the skin. Foment the limb with cloths immersed in a strong decoction of hops, and repeat two or three times a day. It may likewise be steamed over *bitter herbs*, or a bandage applied and kept wet with the decoction. If hot applications aggravate it, keep the limb wet with cloths applied cool. If it proves obstinate, *ley water* may be used in the same manner; likewise *salt* and *water;* and the whole limb may be anointed with *bitter-sweet* or *mullein ointments.*

Patients suffering with this disease should be kept in a recumbent position, and have but a light diet, after the inflammation has subsided the limb should be bandaged and diuretics pretty freely administered and the skin well attended to.

Stimulants and tonics are also necessary to sustain the

strength, and among the best we shall recommend is, iron, golden seal, dogwood, etc.

Dr. Mattson has recommended the following treatment:

If the attack is violent, a course of medicine should be administered, repeating it according to the severity of the symptoms; and when the fever is entirely subdued, the patient is to be strengthened by the use of spiced bitters, or some other tonic, with an occasional dose of composition. If the bowels are costive, they should be evacuated once or twice a day with injections. The limbs should be steamed for half an hour or an hour every night and morning, by means of the *hip bath*, or in any other convenient manner, and rubbed briskly afterwards with the stimulating liniment, or a mixture of vinegar and cayenne. It is then to be swathed in flannels to keep it warm, and a bottle of hot water wrapped in a damp cloth placed at the foot. By this treatment, in addition to courses, provided they are necessary, the swelling will soon subside, and the patient recover her health.

The disease is sometimes accompanied by an offensive discharge from the vagina, and in that case it should be cleansed with injections, which may consist of raspberry, bayberry, or witch hazel tea, adding half a tea-spoonful or more of rheumatic drops.

ASTHMA—PHTHISIC.

Description and Causes.—This disease is a spasmodic affection of the lungs, which comes on by paroxysms most generally at night, and is attended by a frequent, difficult, and short respiration, together with a wheezing noise, tightness across the chest, and a cough; all of which symptoms are much increased when the patient is in a horizontal position.

Asthma rarely appears before the age of puberty, and seems to attack men more frequently than women, particularly those of a full habit, in whom it never fails, by frequent repetition, to occasion some degree of emaciation. Dyspepsia always prevails, and appears to be a very prominent feature in the predisposition. Its attacks are most frequent during the heats of summer, and in winter when heavy fogs or sharp cold winds prevail.

When the disease is attended with an accumulation and discharge of humors from the lungs, it is called the humid asthma;

but when it is unaccompanied by any expectoration, it is known by the name of the dry or spasmodic asthma.

The predisposing causes of the disease are not known. Very often it attacks those who are thin and pale; but they have pure, simple, spasmodic asthma. It as frequently, however, attacks those who are short and full,—bulky; and those generally have a combination of asthma and chronic bronchitis. They expectorate a great deal; have "*humoral* asthma." Of the real predisposition, however, we certainly do not know the nature. We know it is often hereditary. Asthma attacks many, whose parents (one or both) or whose grand-parents have had the disease. It runs in families.

With regard to the *exciting* causes of the disease, they are (in general) cold and damp, and especially fogs. Some persons have it only in cold weather; others have it only in damp, foggy, moist weather; but there is a great variety in this respect. Some persons have it only in summer, and are all the better for cold weather; and some never have it but in particular situations. Most people are better in the country, if it be a dry place; but some are better in the city; so that persons who have made their fortunes, and retired to the country, have become asthmatic; and have been obliged to return, and live in the city again.

In some persons, this disease is only induced (as it would appear) from particular exhalations from the vegetable kingdom; the emanations from the grass in flower. These are the people who have asthma only in summer; but by far the greater number have the disease aggravated in winter, and are pretty well in summer. Some, however, are never asthmatic till about May or June. We think all these cases may be resolved into that particular form of disease, which has been called "hay-fever," or "hay-asthma." In some cases, there is a simple spasmodic affection of the breath; and in others, there is a violent catarrh, united with the spasmodic affection. This is a disease which has only been noticed in late years, and respecting which there are some curious facts.

The proximate or immediate cause of the disease has, by Dr. Cullen, and most other writers, been supposed to be a preternatural or spasmodic constriction of the muscular fibres of the bronchiæ, which not only prevents their being so dilated as to admit of a free and full inspiration, but also gives them a rigidity, which interferes with a free and full expiration.

This doctrine has, however, been disputed by Dr. Bree, who, in a very ingenious treatise on this disease, offers it as his opinion,

that irritation seated within the air-cavities, and arising either from an effusion of serum, or from æriel acrimony, is the true proximate cause of convulsive asthma. The mucus which is excreted in the course of the disease, and which has been looked upon by Dr. Cullen and others as only an effect, Dr. Bree views as a prominent cause of the paroxysm; or, when it is absent, only yielding to a different cause equally irritating to the organ. and exciting spasmodic contractions of the respiratory muscles.

Dr. Darwin says, that whatever may be the remote cause of the paroxysms of asthma, the immediate cause of the convulsive respiration, whether in the common asthma, or in what is termed the convulsive, which are perhaps only different degrees of the same disease, must be owing to violent voluntary exertions to relieve pain, as in other convulsions; and the increase of irritability to internal stimuli, or of sensibility during sleep, must occasion them to commence at this time.

Asthma usually diminishes as soon as a mucous secretion begins to take place. This fact is convincing proof of a preternatural fulness of the vessels of the mucous membrane of the bronchiæ, so as to impede free respiration, and to produce all the symptoms of spasmodic asthma.

The sudden accession of the paroxysms generally after sleep, their returning at intervals, and the sense of constriction about the diaphragm, occasioning the patient to get into an erect posture, and to fly for relief to the cold air, will readily distinguish asthma from other diseases.

For the most part, however, there is blending of the two, nervous irritation and capillary congestion; while, at the same time, the predominance of one or other will vary the features of the disease, and give rise to difference of nomenclature, as when we speak of *nervous asthma*, *congestive asthma*, and *catarrhal asthma*. According as the two elements, nervous and capillary, are equally blended, there will be a tendency to a solution of the disease or abatement of its extreme violence, at any rate additional symptoms, as bronchial secretion; and hence we shall have *mucous asthma* and *pituitous asthma*. A more correct view of these two last varieties would probably be, to regard the asthmatic as supervening on the original lymphatic or phlegmatic temperament, the individuals of which have a constitutional tendency to a free secretion of mucous from the bronchial mucous membrane.

Diagnosis.—The phenomena which constitute and characterise a fit of asthma, are somewhat as follows:—The patient, if he

have previously suffered under the disease, has usually some well understood warnings that an attack is hanging over him. Loss of appetite; frequently much flatulence and eructation: languor, irritability, drowsiness, oppression, chilliness; and he goes to bed ill and uncomfortable. The dyspnœa comes on generally after midnight, about two or three o'clock in the morning; often during sleep; and the patient wakes with a sense of tightness and constriction about the chest, and an inability, as it seems to him freely to expand it. He is obliged at once to rise up; and he sits, leaning forwards, with his knees drawn up, his elbows on his knees, and his head supported with his hands, laboring for his breath, and making such a loud wheezing noise as to be audible at a considerable distance. He experiences a strong desire or necessity for fresh air: opens the door of his room and goes out upon the stair-case, or flies to an open window, even in very cold weather: and remains there, with his head out, sometimes for hours. That he can do so with impunity is a strong presumptive proof that it is the nervous system which is principally affected in these cases. His extremities at the same time are usually cold, and his countenance is distressed and haggard: while the trunk of his body may be wet with perspiration. Sometimes the face is a little flushed and turgid: but more commonly, it is somewhat pale, and shrunk. The pulse is often small, feeble, and even irregular; and in many instances there is much palpitation of the heart. At other times the pulse remains undisturbed. If urine be passed, as it frequently is, at the beginning of a fit of asthma, it is copious and watery, pale, and without smell, like the urine of hysterical women. The bowels are also sometimes relaxed, with "something of the impatient hurry and imperfection of spasmodic action."—There may be some propensity to coughing, but the patient can hardly achieve a cough; and is so occupied with his breathing, that he can speak in an interrupted manner only, with difficulty and uneasiness. He has not, however, in general, any misgivings about the event of the attack, but looks forward with hope to the expected termination of the paroxysm.

These symptoms often continue for many hours together; and particularly from midnight till morning is far advanced. Then, commonly, a remission takes place by degrees. The breathing becomes less laborious, and more full; so that the person can speak or cough with more ease. And if, as is usually the case, the cough brings up some mucus, the remission becomes immediately more considerable, and he falls into a much-wished-for sleep.

Paroxysms of this kind will often continue to recur for many nights in succession; remitting at length in their severity and ceasing, for a period, altogether.

During the intervals between these paroxysms, in the day-time, the patient *may be* perfectly well; but he seldom *is* so; though so great is the difference between his condition during the remissions, and in the paroxysms, that he declares, and perhaps fancies, that he is quite well. You will mostly find, however, that he is short-winded; that he does not utter many words of a sentence before he pauses to take breath; that slight bodily exertion hurries his respiration; and that he is not easy in a horizontal posture, with his head low.

Although the dispnœa is thus intermittent, you are not to suppose that the paroxysms recur with the regularity of those of ague. The interval is of uncertain duration; and the circumstances of the paroxysm differ in different instances.

The disease is easily distinguished from hydrothorax. On striking all over the chest, we have a clear sound; and, on listening, we have respiration all over the chest—which we cannot have if any part of the cavity be filled with water. It is distinguished from bronchitis, by the abscence of sonorous and sibilous rattle, except in the upper parts. Down below, throughout the rest of the chest, we do not hear those peculiar sounds of bronchitis; or, if we do hear something like them, they suddenly cease; and then there is the sound of health; but while bronchitis lasts, we have sonorous and sibilous rattle; and these only subside either from the interference of art, or the disease itself ceasing. In general, a loud respiratory murmur is heard all over the chest—louder than it should be. The absence of other diseases, together with the suddenness of the attack, the suddenness of its cessation, and its extreme aggravation from time to time, will enable us to form our diagnosis.

The usual duration of a paroxysm of nervous or spasmodic asthma is three or four hours; after this, the symptoms generally become mitigated. When the paroxysm has attained its height, the cough usually becomes more free, and the expectoration more easy and copious; the sputa are transparent, colorless and viscid; and, occasionally, of a sweetish, but oftener of a salt taste; and towards the termination they are ropy and similar to a solution of gum tragacanth.

At times, they have been observed as if moulded to the bronchia, but in such cases, there is doubtless, inflammation of the lin-

ing membrane of the tubes, of which this plastic secretion is one of the evidences. Whilst the respiration and expectoration are becoming more free, eructations of gas generally take place from the stomach; the pulse becomes more full and free; the countenance resumes its natural expression; the urine, which was at first perhaps pale, watery, limpid and copious, becomes of a darker color, less copious, and at times altogether suppressed, and at length the patient, exhausted, sinks to sleep. On awaking, he may find himself entirely restored, but almost always, there is more or less pain in the region of the diaphragm, with dyspnœa, which—if the paroxysm is about to return on the following night—may continue through the whole day. Towards midnight, there may be a return of the paroxysm, and this may be the case for three or four nights, after which the individual may be restored to his accustomed health. This succession of paroxysms, constitutes an attack of asthma.

Asthma is very rarely fatal. The most violent attacks, which seem to threaten instant suffocation, almost always terminate favorably.

Treatment.—In the treatment of asthma we should endeavor to moderate the violence of the paroxysms, and when they have subsided, to hinder their recurrence. With the view of preventing any danger from the difficult transmission of blood through the lungs, and of obviating the plethoric state of the system, which might be supposed to have a share in producing a turgescence of the blood in the lungs, lobelia emetics should constitute our main reliance. All modern authors concur in this opinion. While they say that lobelia is poisonous and an unsafe medicine in almost all other diseases—yet it is freely recommended and given in this. Regular courses of medicine should always be resorted to, to free and cleanse the internal system, with the proper intermediate exhibition of No. 6 and composition. The adoption of this course will rarely fail to afford immediate and permanent relief.

The vapor bath will be found a powerful and efficacious means of relief, in severe paroxysms of asthma, either before or after an emetic; and where its application is practicable it should not be omitted.

If the patient is laboring under any degree of debility a suitable tonic course should be advised. Whenever any of the causes above enumerated surround the individual who is a subject of this complaint, and any indications admonish him of its approach,

the tincture of lobelia must be liberally taken, to ward off an attack.

As the free passage of air to and from the lungs is oftentimes obstructed by a lodgment of mucous matter, its expulsion may be promoted by any of the expectorants recommended under that head.

In the intervals of the attacks, it will be highly necessary for the patient to avoid the various exciting causes; to keep the digestive functions in a proper state; to guard against atmospherical vicissitudes, and to keep up a regular and uniform excretion from the pores of the skin by flannel and the frequent use of the vapor bath: lastly, to maintain as even a state of mind as possible, remembering that asthma is more alarming than dangerous, and that it rarely proves fatal, unless complicated with, or in inveterate cases terminating in, some organic disease of a vital organ.

A dry and settled atmosphere is most friendly to asthmatical people, not only because it is free from impure vapors, but also as having more elasticity to press upon the vesicles of the lungs.—While some asthmatical persons cannot live, however, with any comfort in the atmosphere of large cities, there are others again who feel themselves better in air replete with gross effluvia, and breathe with greater ease in a crowded room, where there are several candles and a fire. Indeed the removal from a cold to a warm climate is sometimes found beneficial.

In every species of asthma the patient's diet should consist of such things as are light and easy of digestion, carefully avoiding at the same time whatever may tend to generate flatulency: and as many kinds of vegetables are apt to be attended with this effect, they are almost all improper. Animal food of the lightest kind, taken in a moderate quantity, so as not to overload the stomach, will be the most proper for asthmatics.

With regard to the *prevention* of the disease, besides the remedies just mentioned, and besides removing the patient from the exciting cause if it be known, it is of great use to pay attention to the stomach and bowels. Every body knows, that if the abdomen be distended, the diaphragm cannot descend freely, and we can scarcely breathe; and asthmatic people suffer, in these circumstances, to a very great degree. Dr. Wilson Philip has spoken highly of galvanism in this complaint, and no doubt it does good; but we cannot expect it to be universally efficacious, when we consider that asthma is often united with organic affections,

and with chronic bronchitis. When persons are very weak, tonics are necessary—particularly iron. Dr. Bree used to exhibit the sesquioxide of iron particularly in the disease, as a *tonic*.—With regard to the inhalation of chlorine, it may be had recourse to in every form of asthma. We may impregnate water with it, and make the patient breathe through it, and in that way inhale it. Some have found benefit from tar; and others from tanner's liquid, put in one corner of the room. Another way of giving persons the advantage of these things, is to impregnate water with them; and to make patients breathe through the water, three or four times a day.

Strong coffee has been recommended by some as a most valuable remedy, but of no use if the patient is in the daily habit of it.

As in all other diseases in which the nervous system exerts predominant influence, and which are liable to occur either periodically or at irregular intervals, the most success is to be hoped for by a perseverance in judicious measures of a preventive character during the period between the paroxysms. These will be hygienic and partly therapeutic; and should be so directed and carried out as to include an entire system of regimen in the large sense and the judicious use of medical tonics and some alteratives.

To the class of tonics belong travel, free exercise in the open air, frictions on the skin, and gymnastics. We have seen this last, after being regularly pursued for a while, protract the period between asthmatic attacks in sickly youths, and eventually almost remove the disease. Cold bathing, in the safest fashion of simple ablution of the surface after rising, has been strongly recommended by many writers on the disease. In some cases it is useful; in others, in which the reaction was slow and imperfect, it seemed to cause catarrh and aggravate the disease. Drinking mineral waters and especially those of the sulphurous class, for a season, has been productive of manifestly good effects; but in making a selection much will depend on the disorder complicated with the asthma, and also on the toleration by the patient of the air of the locality in which the springs are found.

We shall in no case advise the narcotic poisons so highly recommended by the Allopathic writers, since we have never known a case which has not yielded more or less to the above treatment of Lobelia and its adjuncts.

During a paroxysm or fit of the asthma the patient must be placed in an erect position, and his feet immediately immersed in warm *ley water*, and *sinapisms* applied, with a view to equalize

the circulation, or divert the blood or humors from the lungs and bronchial vessels. An infusion of *catnip* or *pennyroyal* may be given at the same time, to excite gentle perspiration, which course will soon afford relief. Should the paroxysm, however, be very severe, attended with a sense of suffocation, etc., administer immediately, in a cup of warm tea, an ordinary sized table-spoonful of the *tincture of lobelia*, to be repeated every half hour if the first portion does not afford relief.

This medicine exerts the most astonishing effects in this complaint. It is no sooner introduced into the stomach than the tension and spasm are removed, by dislodging collections of mucus in the bronchial vessels, and thereby giving free admissions of air into the lungs; and it is invariably attended with a salutary effect.

Having suspended the paroxysm, the next step will be to effect a radical cure; and this is seldom done, for the reason that asthmatic patients generally discontinue the medicines when they become comfortable. But when the patient wishes a cure effected, he must persevere in the use of proper means. It will be necessary for him to repeat the dose of the tincture or powder of *lobelia* once or twice a week, in doses sufficient to excite general vomiting. He must also occasionally take a *purgative*.

During the intermissions, and when the patient is afflicted only with cough, difficulty of breathing, etc., the following medicine may be taken: Take liverwort (*Hepatica triloba*,) a quarter of a pound; Solomon's seal, (*Conv. multiflora*,) a quarter of a pound; skunk cabbage, (*Ictodes foetida*,) a quarter of a pound; water hoarhound, (*Lycopus virginiana*,) a quarter of a pound; bloodroot, (*Sanguinaria canadensis*,) two ounces: bruise, and add a sufficient quantity of water. Boil until the strength is extracted, strain, and continue to boil until there are four quarts of the liquid, then add five pounds of honey and half a pint of brandy; let it settle, and it is fit for use. Of this let a wine glass be taken three or four times a day. During the time that this is taken, give an infusion of *hoarhound*, warm at night and cold through the day. It will be necessary to keep a determination to the surface by giving diaphoretic medicines. A strengthening plaster may be worn upon the breast and between the shoulders, to divert the humors from the lungs. When there is difficulty of breathing from an accumulation of mucus, give the *expectorant tincture*.

PERITONITIS—INFLAMMATION OF THE PERITONEUM.

Description and Causes.—Before we proceed to describe this particular form of disease of the abdomen, it is well to remark that we gather very important intelligence by the sense of *touch.* We learn the existence and the size of *tumors;* we approximate to a knowledge of their nature, whether it be solid or fluid; we determine whether they are movable or fixed, painful or indolent, hard or soft, smooth or uneven, pulsating or not. We ascertain whether the surface be hot or cold. In order to make palpation most effectual, the patient should be placed in the most favorable posture for its performance; *i. e.*, he should lie on his back, with his head a little raised, and his knees up. In this position the abdominal muscles are relaxed and unstrung; and the patient is to be cautioned not to do anything which may make them tense. Sometimes, in spite of this caution, and in spite, probably, of the patient's endeavors to obey it, the recti muscles remain so tightly contracted as to prevent any satisfactory examination of the parts beneath them. The very occurrence of this instinctive striving against the pressure of our hand may be taken as a ground of suspicion that those parts are not in a healthy state. We must take care, when the muscles are thus obstinately rigid, not to mistake the swelling central portions of the recti, or their well-defined edges, for tumors, or for indications of an enlarged stomach or liver. By a peculiar management of the palpation, we often satisfy ourselves at once of the presence of liquid in the cavity of the peritoneum, or in a cyst; we obtain that sensation which we call *fluctuation.*

The exploration by the sense of touch is very much aided—often confirmed, sometimes corrected—by that which addresses itsslf to the sense of hearing. Sometimes we listen to the natural sounds through a stethoscope; and we may thus decide the important question, whether a pulsating tumor be or be not an aneurism; or the question sometimes scarcely less important, whether a different kind of tumor encloses another living being or not.—But, for the most part, our information respecting the maladies of the abdomen, collected by the sense of hearing, is obtained by listening to sounds which we ourselves produce; in one word, by *percussion;* and mediate percussion, percussion performed through the finger as a ready pleximeter, is *particularly* applicable to the disorders of the abdomen. By this expedient we can tell whereabouts the intestines lie; whether the parts beneath the place per-

cussed be hollow and filled with air, or solid; or, though naturally hollow, distended with liquid. By making the patient change his posture, we are called often, through the aid of percussion, to trace fluid effusions hither and thither, when they have changed their relative situation, by reason of the force of gravity; and then we know they occupy the cavity of the peritoneum.

The peritoeum lines the abdominal parietes, and gives a coat to most of the viscera. It is a serous membrane, and, like all membranes of the class, is the seat of a secretion of a thin albuminous fluid, which keeps it moist. It forms a shut sac in the cavity of the abdomen, and has, in reality, no viscus within it. If the diaphragm be assumed as the part at which it commences, it will be found extending thence over the abdominal muscles, reflected over the bladder, and, in females, over the uterus; from thence over the rectum, the kidney, enveloping the intestines, and conconstituting, by its two laminæ, the mesentery, giving a coat to the liver, and receiving the stomach between its duplicatures. Its use is to fix and support the different viscera, and, by means of its secretion, to enable the intestines to move readily upon each other. When we speak of the cavity of the peritoneum, we mean the inside of the sac: the fluid of ascites is contained within this cavity.

After the peritoneum has covered the stomach and intestines, it forms reflections, which are fatty, and termed omenta, or epiploa.

Peritonitis, from Περιτοναιον, peritoneum, and *itis*, indicating inflammation, ought, in strict philological accuracy, to be *peritonæitis*, as it has in fact, been written by Lynch, in his inaugural thesis, at Edinburgh, in 1769, *De peritonæitide puerperarum.*

The causes usually assigned—as in other cases of internal inflammation—are cold and fatigue. An irregular state of the bowels may, also, give rise to it, as well as contusions and wounds. At times, it supervenes on surgical operations, on extensive abscesses, especially when of a specific kind, and on burns. The essential causes are those of internal inflammation in general. It is said to have been caused by the metastasis of rheumatism and gout, but enteralgia is a more frequent consequence.

Partial or *circumscribed* peritonitis is occasionally met with—and especially in the pelvic and the hypochondriac regions. On such an occasion, the patient may suffer from pain, tumefaction of the part, and inflammatory fever—but commonly in less degree than in general peritonitis; nor do we meet with the sinister expression of countenance, (*face grippee,*) nor the same degree of gastric distress and disorder.

Circumscribed peritonitis is caused in some instances by tumors of the iliac fossæ, arising from cæcitis or partial colitis, with accumulations in the cæcum or in the sigmoid flexure, in which the inflammation extends from the mucous to the serous coats of these parts of the great intestine. When occurring after perforative ulceration of the cæcum or of the appendix vermiformis, it comes under the head of secondary or consecutive peritonitis.

Histories are recorded of its epidemic visitations, and especially in armies. The reference to the occurrence of peritonitis in connection with military movements, suggests the important additions made towards a better knowledge of this disease, and especially in its chronic form, by the indefatigable Broussais; as we read in his admirable work on *Chronic Phlegmasiæ*, some of the richest materials for which were furnished in his military life as army physician in Germany and Italy.

Unless where chronic is a sequence of acute peritonitis, the causes of the former are seldom very obvious. Cold, and protracted intestinal irritation, are sometimes specified. In the *tuberculous* form, which is by far the most frequent, occurring in subjects of a strumous habit or lymphatic temperament, the disease may be developed under any of the common causes of disease. We have seen it follow chronic cutaneous eruption (*psoriasis*) in an adult subject. Women are more liable to chronic peritonis than men, and young subjects more than those in advanced life. The strumous form is most common between early childhood and puberty, and in them it is often complicated with enlargement and inflammation of the mesenteric glands. Chronic peritonitis has been shown by Dr. Simpson to be, as well as acute peritonitis, a disease of intra-uterine life.

The next important complication of peritonitis is that co-existing with inflammation of the womb, or metro-peritonitis. For the most part, the inflammation of the peritonitis is secondary to that of the uterus and consequent upon it. The circumstances under which the associated inflammations occur, are, 1, after operations on the uterus, as by the application of caustics, injections into the uterine cavity, and ablation of the neck for cancer; and 2, after protracted and complicated labors. In these cases, the inflammation of the uterus extends to the peritoneum; but the peritonitis that ensues becomes often the more serious of the two phlegmasiæ, masks the symptoms of metritis, and leads to a fatal termination.

Diagnosis.—The symptoms are essentially the same as those

of acute enteritis of the peritoneal coat. An acute pain is experienced in some part of the abdomen, which may be circumscribed, or extend over the whole lower belly, and is superficial when it affects the peritoneum lining the abdominal parieties, so that the slightest pressure is insupportable; even the weight of the bed-clothes excites intolerable suffering. The parietes of the abdomen are more or less tense and tumid; the countenance has, at times, a peculiar expression—the upper lip being drawn upwards, and bound tightly over the teeth. The patient breathes costally, without depressing the diaphragm more than he can help, and lies upon his back, with the thighs bent upon the pelvis, and the knees frequently raised, so as to take off the pressure of the bed-clothes. The pulse is generally small, and the skin hot and dry; and a recent writer affirms, as a fact, which he has tested by constant observation for upwards of forty years, that in all cases of peritonitis, in whatever part of the abdominal cavity the inflammation is seated, there is pain in the pubes, and upon the great trochanters; which, if not felt spontaneously, is always developed by pressure, and of which the severity is directly proportionate to that of the peritonitis. It is attempted to be explained by the relation of the nerves of the parts, in which pain is felt, to the peritoneum, and by its connection with the fasciæ and muscles about them.

Along with these local signs, the functions of the stomach and bowels are always more or less disordered: but often there is neither vomiting nor constipation; or, if the bowels are confined, they are easily moved by cathartics.

Acute peritonitis may terminate unfavorably in a few days; but when its course is more protracted, there may be evidences of sero-purulent effusion into the cavity of the peritoneum. This is not necessarily a fatal occurrence, as the fluid may be absorbed, or form a communication between the cavity of the peritoneum and the intestines. The signs that denote the termination of the inflammation in effusion, are—diminution of the pain and swelling, with a doughy feel of the abdomen, and infiltration of the parietes of the abdomen and the lower extremities. By percussion, also, the presence of fluid may be detected.

Acute peritonitis may terminate in the chronic, or it may have, from the first, the characters of the latter, and be very insidious, so as to require great attention in its detection. The symptoms are much less marked, the abdominal pain less acute, sometimes almost null, and only to be detected by careful pressure. It is even affirmed, that there may be no pain, tenderness, or tumour

of the abdomen. The abdomen is tense, and doughy, as in the acute form; often, indeed, more manifestly so, and the fluctuation more perceptible, inasmuch as careful percussion can be practised. The pulse is small, more frequent than natural, and especially towards evening. There is usually neither vomiting nor purging, and the appetite may persist; the emaciation is progressive, and there is evident hectic, under which the patient is gradually worn out.

It has been affirmed that when peritonitis follows delivery, the abdomen—the walls of which have undergone considerable distension, and have not resumed their wonted resistance—acquires a greater size than in ordinary peritonitis; the lochia are suppressed, the mammæ shrunken, the secretion of milk suspended, etc. On the other hand, it has been equally affirmed, that a striking mark of distinction between diseases which resemble each other in the prominent characters of fever and pain in the belly, is, that in the true puerperal fever, the lochial discharge never ceases. The truth would seem to be, that the discharge sometimes flows as in ordinary cases; is some diminished, and, in others, suppressed, —the condition described by Professor Hamilton being the least common, inasmuch as the extent of secretion is likely to be interfered with by the concentration of vital action towards the peritoneum. The same effect may be expected upon the secretion of milk, if it has been already established; but if the secretion has not taken place at all, it is apt to be postponed until two or three days after convalescence takes place.

If a patient, soon after delivery, has an unusually frequent pulse, and this state is not the result of nervous exhaustion from hemorrhage,—the pulsation being, at the same time, not only frequent but quick and vibratory,—serious internal mischief has to be apprehended; and if to this there be superadded—tenderness over the region of the uterus especially, or about the iliac fossæ, with diminished lochial discharge, partial or general peritonitis may be anticipated. The diagnosis, however, of puerperal peritonitis often demands the most careful investigation.

The formidable symptoms are exhibited by the pulse, which is generally very rapid; by the countenance, which is remarkably anxious and sunken; and by the nervous system, which is greatly agitated and depressed; low, muttering delirium being a common concomitant.

That variety of peritonitis which results from perforation of the stomach or intestines, and the effusion of their contents into

the cavity of the belly, is full of interest. The inflammation is violent in degree; universal (generally) in extent: and almost fatal. The attack is characterized by its *suddenness*. All at once intense pain arises in some region of the abdomen, which soon becomes tender in every part. The pain is incapable of removal, and generally even of mitigation, by medicine, and death takes place in a short time. These are the general features of such cases. Occasionally, the symptoms follow some different order.

Sometimes it is the *stomach* that is perforated, either by a common or by a specific ulcer; and the symptoms are exactly the same as when the *bowel* gives way. Sudden, unremitting pain, tenderness, and tympanitic distension of the abdomen; and early death.

Perforating ulcers of the stomach are of various kinds. It is not uncommon to find one small roundish hole, with edges as smooth and clean as if a piece of the stomach had been cut out by a punch, and without any surrounding hardness, or other mark of disease. Occasionally the orifice is more irregular, and occupies the centre of a thickened and indurated patch of the mucous membrane.

Usually the actual perforation, in cases such as we are now considering, takes place merely from the natural progress of the ulcer; but sometimes it would appear that the thin membrane which remains is broken by some accidental force applied to it. Thus the symptoms have immediately followed the act of vomiting, brought on by an emetic. Bouillaud relates an instance in which the perforation happened while the patient was straining at stool; and it is conceivable enough, that rough pressure of the abdomen might cause the rupture, when the ulcer had already eaten through all the coats of the bowel except its peritoneal coat.

Treatment.—This disease is very mortal in the Old School Practice, but in the Reform Practice it is soon subdued. The same general principles should govern us here, as in the treatment of all other inflammations, especially of the internal viscera. Fomentations of bitter herbs, we have found to be one of the best remedial agents. The vapor bath must be frequently given, and it will always be found to mitigate the symptoms. Enemas are always to be preferred even to the mildest purgatives. The fever can be very certainly controlled by nauseating doses of Lobelia, and this remedy is to be repeated till free emesis is induced, whenever there is an exacerbation of the febrile excitement.

For drinks we shall find that those of a mucilaginous charac-

ter will be the best, the nourishment should be gruel—porridge—rice water—sago, arrowroot, etc., and weak composition tea. If peritonitis is a sequent of parturition, the treatment must be prophylactic as well as curative.

The prophylaxis will consist in placing a female in the most favorable hygienic circumstances, not only during and after labor, but before this process is begun. More especially is it important, that, during the period immediately succeeding delivery, she should breathe a pure air of a mild and uniform temperature, and be kept in a state both of bodily and mental quiet: the bowels are to be rendered soluble by enemata and gentle laxatives; and, when required, the urine drawn off by a catheter. The posture should be one of entire and persistent recumbency—a deviation from which is not required by any of the natural calls; as these can be gratified by the use of a bed-pan, or in cases of extreme debility, the evacuations must be received on sheets folded for the purpose. The flow of the lochia, especially if they be fetid, is to be favored by regular vaginal injections of warm water and astringents. In case of complication or delay in the passage of the fœtus, or from retention of the placenta, or from uterine hemorrhage, all needless or rough manœuvres should be carefully avoided. Most truly has it been said by Dr. Robert Lee: "a puerperal woman ought to be as careful of herself for nine days after delivery, as an individual who is recovering from an attack of continued fever, or inflammation of some important viscus. While the uterus can be felt above the brim of the pelvis, and the lochial discharge continues to flow, the most fatal consequences may result from exposure to fatigue or cold, and the slightest imprudence in diet."

When this disease becomes epidemic, as it often does, it is generally very malignant, and requires the most active treatment.—We shall have typhoid symptoms which will need the various agencies we have recommended for typhus.

Dr. Comfort advises the following treatment in this disease:

The first and most important remedy is a vapor bath, which should be continued for hours together; or blankets wrung out of hot water be kept constantly applied to the abdomen; the patient being on a cot or mattress, if too weak to sit up; and at the same time frequent and full doses of the third preparation of lobelia should be given, together with injections of composition tea, adding to each injection a teaspoonful of lobelia powder. The injections to be repeated frequently, and retained a few minutes

if practicable; and as often as every hour or two, an additional injection, consisting of from a tea to a tablespoonful of the liquid of the third preparation of lobelia in bayberry tea. The patient must not be subjected to the fatigue of getting up to evacuate the bowels.—In place of the vapor bath, blankets wrung out of hot water may be applied to the abdomen, or a large poultice composed of elm powder, green lobelia and ginger, applied all over the belly, as hot as can be borne, to be kept warm by the frequent application of cloths, wrung out of hot water. This will also prevent the poultice getting dry.

It is important to relax the system in the early stage of the disease, by giving, besides the third preparation of lobelia, frequent doses of an infusion of the brown lobelia. The more the system becomes relaxed by the lobelia in the early period of the disease, the greater will be the chance for the inflammation to establish a favorable crisis.

When the patient sinks into a state of extreme exhaustion, as is frequently the case even when a favorable crisis has been effected, diffusive stimulants should be employed, such as wine whey, carbonate of ammonia, essence of beef, brandy and water, and capsicum tea.

There is a period in some cases of abdominal inflammation when the disease is nearly subdued, yet a tendency to gangrene exists from deficiency of vital power. At such a time the pain will vanish, the pulse become weak, the vital powers sink, and a coldness overspread the body. These symptoms are too often indicative of mortification; but every experienced practitioner must have occasionally witnessed cases of recovery even from this alarming state. Therefore the free use of stimulants under these circumstances may have the effect to turn the scale in favor of recovery, and even if mortification should have taken place, stimulants can do no injury.

Especial care must be observed to avoid giving the patient, during the active stage of the disease, such articles as are prone to fermentation, especially sugar and gruels. Even the medicines should be given without sweetening. It is said that sap-sago cheese, grated and mixed with warm water, is the best article of food that can be taken in cases of peritoneal inflammation, as it is the least disposed to generate gas into the stomach and bowels. Next to this, essence of beef and egg soup should be preferred; but in the early period the patient will be as well, if not better, without food of any kind.

Should not this treatment arrest the complaint in a short time the following fomentation may be applied: Take tanzy, wormwood, hoarhound, and hops. Boil all in vinegar and water, then inclose them in flannel or muslin; apply to the abdomen, and change them often.

Should vomiting be a predominant symptom, the following preparation may be given: Infusion of spearmint, half a pint; salæratus, a tea-spoonful. Give a table-spoonful every hour.

The inflammation sometimes is so great that the passage of the bowels seems closed, so that nothing will pass them. Should this be the case, and should not the means already prescribed prove effectual, the patient may be put into a warm bath, and occasionally repeated. Should the swelling, inflammation, or pain continue after the above treatment, let a *mustard plaster* be applied to the bowels, and kept on till the skin is reddened, and the *composition powders* given every two hours.

GASTRITIS—INFLAMMATION OF THE STOMACH.

Description and Causes.—The arrangement of the coats of the stomach and of the intestines occasions their diseases to differ materially from those of the supra-diaphragmatic portion of the digestive tube. They are lined, it is true, with a similar membrane, but their muscular coat is much thinner, and, in addition, they have a reflection of the peritoneum, which lines the cavity of the abdomen. All these coats are liable to be implicated in disease, but the prominent affections are mainly restricted either to the mucous or the peritoneal coat; the function of the muscular coat being generally more or less modified, but the structure itself not being materially implicated unless the organic mischief is considerable.

Exposed, as the stomach is, to the contact of various irritants, it is surprising that it is not oftener affected with serious disease. With the most regular and temperate, its sensibilities must be variously affected by the different aliments received into it; yet, even in the intemperate, the impunity with which heating substances can be received into the organ, indicates a wonderful resistance to the action of morbific agents.

Of late years, the attention of pathologists has been more directed to the condition of its lining membrane; and, although we may

not embrace all the views of Broussais, who considered the gastro-enteric mucous membrane to be the *fons et origo* of most diseases, we cannot doubt, that morbid conditions of an inflammatory nature may exist, which may not be indicated by the ordinary signs of inflammation, and yet, by irradiation, may be the cause of much suffering, not only in the digestive apparatus, but elsewhere. If, consequently, we reject the exclusivism of Broussais, we must still retain much that is valuable of the labours of that eminent, but too enthusiastic teacher.

Gastritis is produced, in the first place, by the common causes of all inflammation, cold applied to the body, especially when the body is heated. Sometimes it is produced by cold applied to the inner surface of the stomach, when the body is over-heated. Sometimes, when a person is very hot and takes cold drinks, before inflammation comes on, there is a state of extreme debility. Occasionally the power of the stomach seems almost destroyed; the person is very faint; the pulse is small; and sometimes death ensues without any reaction taking place. We sometimes hear of ladies dying suddenly, when they have been drinking cold water, or eating ice, while they are hot. The danger does not arise simply from being hot; for the hotter we are, the more good does cold do. It is not even the simple circumstance of sweating, that makes it dangerous for a person to go into the cold bath, or to roll himself in the snow,—which the Russians do when there is no necessity for it; but it is the circumstance of the individual being exhausted, that makes the abstraction of all stimuli dangerous. If we meet with a patient who has an affection of the stomach from exhaustion, the best mode of treating it, is to give it a large dose of cayenne, together with other stimulants. If the person recover from this state, it is possible that inflammation may not arise. But sometimes, without such a depression as this, the application of cold to the surface when the body is exhausted, may produce inflammation,—just as in other cases. The external application of cold may produce inflammation of the bowels.

Occasionally gastritis is produced by the sudden cessation of gout. When gout suddenly ceases in an extremity, inflammation of the stomach will arise; and that of a very dangerous character. But another state of the stomach is frequently induced in these circumstances;—namely, a violent spasm of the part (gastrodynia). Gastritis sometimes occurs sympathetically with an affection of the kidneys;—when the kidney is severely affected in various ways. When a stone is on its passage from the kidney, the stom-

ach generally sympathizes; so that vomiting occurs, and sometimes real gastritis takes place. It will sometimes arise from sympathy with the state of the womb. The womb, when diseased, frequently gives rise to nausea and vomiting; and sometimes the irritation may amount to inflammation. This state is very often induced by the passions of the mind. A sudden emotion of the mind, of a very disagreeable character—great grief—sudden surprise of an unpleasant description,—sudden and severe shock,—will sometimes give rise to a spasmodic pain here ("spasm of the stomach," as it is called); and sometimes to actual gastritis. Great fatigue will have the same effect. Of course it is a disease that is easily produced by any acrid matter. Many poisons produce inflammation of the stomach; but any acrid matter whatever—such as a large dose of cantharides, or corrosive sublimate, calomel and tartar emetic—or any thing else that can irritate the stomach, may produce gastritis. It occurs likewise in other diseases. In fevers, gastritis of more or less intensity is very common. In the fevers of hot countries, there is a burning heat at the pit of the stomach—deserving to be considered as active acute gastritis.

On inspecting the stomach after death, the redness is very seldom universal. It is very seldom that the whole of the inner surface of the stomach is inflamed. Sometimes this is the case; but generally it only takes place at particular parts. When peritonitis exists, that portion which covers the stomach may be inflamed, the same as any other part; but in a general gastritis, properly so called—gastritis independent of inflammation of the peritonæum—merely produces local effects on the mucous membrane of the stomach; though occasionally it extends to the cellular membrane between the coats. This disease very seldom induces gangrene.—Very seldom does it produce abscess; but occasionally an abscess has been found between the coats of the stomach. We are more likely to meet with gangrene of the stomach after acrid substances have been applied, than in any other circumstances. If caustic substances have been taken, then we may expect gangrene. A slough is produced, which may or may not be thrown off.

Care required in determining the Cause.—This disease may arise from acrid or poisonous matters introduced into the stomach, without our being able to discover any trace of them. It is very possible for a patient to have vomited every thing which he took, or for the ingredient to have passed into the intestines, and so to have escaped from the body; and yet sufficient inflammation may have been induced to destroy life. Although it is very possible

that death may ensue from things taken into the stomach, we are never justified in saying that inflammation of that organ—that the various morbid appearances which we see there, have been owing to poison, unless we prove its presence ;—unless we discover it in what has been vomited ;—unless we find it contained in the alimentary canal, or in what has been discharged, or in a vessel of the contents of which the patient clearly partook. If it were not for an accurate knowledge of this circumstance, we might suspect that poison had been taken, without there being any justifiable reason whatever for the opinion ; for the appearances within the stomach may be precisely the same as those induced by taking poison, or some other injurious matter; when it is simply common inflammation, and the effects of it.

Gastritis is most commonly the effect of irritants applied to the mucous surface of the stomach ; but we must include under that head certain substances which, to most people, are not injurious at all, and which only become so to some persons under particular circumstances. Thus, large draughts of cold drink, taken when the body is hot, and rapidly parting with its heat, and especially large draughts of cold *sour* liquors, as cider or stale beer, are apt to give rise to acute gastritis. Another occasional cause of gastritis is the ingestion of very large quantities of food at one time, especially during convalescence from any serious disorder. It is an exceedingly curious fact, too, but one which we merely mention without dwelling upon, that certain poisons introduced into the body through some other channel, will cause inflammation of the mucous membrane of the stomach, with which they have *not* been in contact. Corrosive sublimate and arsenic excite inflammation, with ulceration or sloughing of the mucous membrane, even when they are merely rubbed, in a certain quantity, upon the skin, or when they are inserted into the rectum.

Diagnosis.—The pain that accompanies gastritis is augmented by pressure upon the epigastrium. It is increased also by the full descent of the diaphragm, and the *breathing* is consequently short and constrained. In the most exquisite cases of gastritis, produced by chemical or mechanical irritants applied to the interior of the stomach, the inflammation probably reaches and involves, more or less, the peritoneum. The patients speak of the pain as a pricking and burning sensation ; it is attended with great anxiety and restlessness. The sufferer is tormented with extreme thirst, while all that he drinks, even cold water, is almost instantly rejected by vomiting.

Hiccup does not always accompany acute gastritis. It sometimes occurs early; but more generally it comes on late inthe disease, when the patient is sunk and much debilitated.

The bowels, in this complaint, are sometimes bound; sometimes, on the contrary—especially when the inflammation has been caused by corrosive poison—dysenteric diarrhœa ensues, with much griping and tenesmus.

Such, then, are the symptoms that indicate the existence of acute gastritis; but you ought to be aware that they occur in varying combinations, and with different degrees of severity; and consequently that the course of the disease is not uniformly the same in all cases. When the symptoms are the most violent, and the progress of the complaint is the most rapid, the peritoneal coat of the stomach is usually more or less implicated.

Intense inflammation of the stomach may be expected to be rapid in its progress. It may destroy life within twenty-four or even twelve hours. When it is fatal, it generally is so within a few days; and death takes place by fainting: with a remission of the pain, sometimes very sudden, and sometimes occurring only just before dissolution. But as idiopathic gastritis is rare, *fatal* idiopathic gastritis is, of course, still more so. Louis states, that during six years' experience at La Charite, in which period he noted the details of 6000 cases of disease, and of 500 dissections, he did not meet with a single instance of fatal idiopathic gastritis.

Gastritis is much more frequently a *chronic* than an *acute* affection. When it exists in a *chronic* form, the symptoms are much the same as when it is *acute*; only they are less intense. There is a great sense of heat within the stomach, rising from the œsophagus into the pharynx; great thirst; tenderness of the part on pressure; loss of appetite; nausea; and frequent vomiting. The tongue is *generally* red somewhere—either at the tip, the sides, or all over; but we may have inflammation of the stomach, more or less violent, without redness of the tongue. We must not depend on the tongue alone. There is generally redness of the tongue; but we are not to say that the other symptoms do not show gastritis, because the tongue is absolutely white, or not much affected. In these chronic cases, there are generally dyspeptic symptoms—such as a great flatulence, great acidity, and a sense of sinking at the pit of the stomach. The latter is a very common symptom; and, to remove it, people generally take wine and brandy, and make things worse. The want of attending properly to this point, occasions very absurd treatment.

If the disease increases in violence, symptoms of irritation then ensue; there is great loss of strength, with faintings, a short and interrupted respiration, cold, clammy sweats, hiccoughs, coldness of the extremities, an intermitting pulse, and the patient is soon cut off.

The event of gastritis is seldom looked upon favorably by the old faculty, as the person is usually either suddenly destroyed by the violence of the inflammation, or else it terminates quickly in suppuration, ulceration, or gangrene. Perhaps it may sometimes occasion scirrhosity of the pylorus.

Its termination in suppuration may be known by the symptoms, although moderate, exceeding the continuance of eight or ten days, and a remission of pain occurring, whilst a sense of weight and anxiety still remains, and on the formation of an abscess, cold shiverings ensue, with marked exacerbations in the evening, which are followed by night-sweats, and other symptoms of hectic fever; and these at length prove fatal, unless the pus is thrown up by vomiting, and the ulcer heals.

Its tendency to gangrene may be dreaded from the violence of its symptoms not yielding to proper remedies early in the disease, and when begun it may be known by the sudden cessation of the pain, by the pulse continuing its frequency, but becoming weaker, and by delirium, with other marks of increasing debility ensuing.

In consequence of previous inflammation, a scirrhosity of the pylorus is sometimes induced, but unfortunately we know of no symptoms which are characteristic of it. Nausea and vomiting soon after taking food, and very obstinate costiveness, are usually present. When it has ulcerated, and formed what is called cancer, there is generally an eructation of very fetid air, and a frequent vomiting of dark-colored mucus, which is offensive. The pain is constant, though varying in degree; it is increased by taking an acrid or acid substance into the stomach; whereas mild fluids, such as milk, gruel, etc., occasion little or no uneasiness; and this circumstance may help to distinguish it from that pain which is occasioned by mere distension, for there the pain equally follows, whatever is the food taken.

Sometimes adhesions are formed between the stomach and neighboring viscera.

Fatal cases of this disease show, on dissection, a considerable redness on the inner coat of the stomach, having a layer of coagulated lymph lining its surface. They likewise exhibit a partial

thickening of the substance of the organ at the inflamed part, the inflammation seldom extending over the whole of it. Where ulceration has taken place, the ulcers sometimes are found to penetrate through all its coats, and sometimes only through one or two of them.

It is of the greatest importance to attend to the sympathetic relations of gastritis, for this reason, that in many cases the local symptoms are all but wanting, and the disease is only to be known by its sympathetic relations. Before entering on this subject we shall make one or two remarks on some symptoms which have not been attended to by many practitioners. One of these is an incapability of swallowing, sometimes so great that all ingesta, whether fluid or solid, are rejected. This will sometimes arise from spasmodic stricture of the œsophagus or cardiac orifice of the stomach; and, as there has been no other cause revealed, by dissection, in several cases in which this symptom was present, we must admit this as one of the causes of the dysphagia, which on some occasions, attends gastritis. This symptom is most commonly accompanied by tightness and oppression about the præcordia. The patient, feeling a load of weight, as he expresses it, in this situation, thinks it would be relieved by vomiting, and begs his medical attendant to give him an emetic, which is sometimes administered, and produces great relief.

Treatment.—In the treatment of gastritis, the first enquiry is to find out the cause, and if we learn that any poisons, whether corrosive or narcotic, have been taken, an emetic of Lobelia must be immediately administered. The cataplasm of bitter herbs will be found very useful during the whole course of this affection, so also our stimulating liniments and the Number Six, freely and frequently applied over the abdomen. Cathartics should seldom be used, but our main dependence should be in enemas.

The extreme irritability of the stomach, in this form of disease, prevents the free use, with any degree of satisfaction, of either food or medicine; the pain is so much increased upon the introduction of any article, that it is with the utmost difficulty that the patient can be persuaded to swallow anything, notwithstanding he may be informed of his truly critical situation.

It is necessary in gastritis that the patient should use mucilaginous drinks; slippery elm, particularly, in frequent small draughts, to which may be added a few drops of the tincture of myrrh; and as the stomach will bear it, other mild diluent drinks, such as chicken broth, milk porridge, etc. Mucillaginous drinks

are particularly serviceable, as they lubricate the parts and allay the irritation.

It is very necessary that the patient should be carried through regular courses of medicine. They should be repeated as often as the urgency of the case may require, perhaps every day, or ottener. In the meantime, the best and least irritating sudorifics should be intermediately advised.

As bleeding, in this form of disease, stands at the head of remedial means in the mineral practice, so must the vapor bath and emetics take the lead in ours. The adoption of the most thorough and efficient courses cannot be too strenuously insisted upon in the outset of this disease. And this remark will apply in general to all acute local inflammation. The ordinary rule of giving a course to-day, and another day after to-morrow, will not do in gastritis.

As soon as the existence of this form of inflammation is unequivocal, nothing should prevent the most prompt application of the bath, followed by a lobelia emetic. If by this operation we gain a remission of the urgent symptoms, it will seldom be of long duration; and a recurrence of their exacerbation, a repetition of the treatment will be demanded, even in four or six hours. During the convalescent stage, the utmost care is necessary in regard to food, drinks, etc.

The patient may be indulged with teaspoonfuls of ice water, or small pieces of ice swallowed will be very grateful. The recumbent position should be enjoined, and the patient seldom allowed to stand or sit erect while the inflamed or weakened state exists.

In chronic inflammation, the above treatment will be found judicious.

But, after all, the main dependence must be placed in the due regulation of the food, which should be mild and unstimulating in quality, and sparing in quantity. The well-known farinaceous substances which figure in the bill of fare of a sick chamber: arrow-root, sago, tapioca, gruel, milk also, and jellies. And even these bland articles of nourishment must be given in moderation, so as never to distend the stomach or to stretch its coats by their bulk, or to overtask its power of digestion. It is difficult, in such cases, to give precise rules for the management of the diet, which must be left to the common sense of the practitioner.

Patients with gastritis may be allowed for drinks, barley water and decoctions of the marsh mallows, bene plant and slippery elm water.

Should vomiting continue, give the following:—Bicarbonate of potash, one drachm, or a teaspoonful; mint water, or tea, half a pint: mix. Give a teaspoonful or two occasionally, or as often as the vomiting occurs.

All acrimonious, heating, and irritating food and drink are to be carefully avoided. The weakness of the patient may deceive the bystanders, and induce them to give him wines, spirits, or other cordials; but these never fail to increase the disease, and may occasion sudden death. The inclination to vomit, too, may often impose on the attendants, and make them think a puke necessary; but that, too, is not good practice. The food must be light, thin, cool and easy of digestion; it must be given in small quantities, and should neither be quite cool nor too hot. Thin Indian meal gruel has a charming effect in this compaint; light toasted bread dissolved in cold water, or very weak chicken broth, are proper.

CARCINOMA OF THE STOMACH—CANCER.

Description and Causes.—The stomach is very frequently the seat of specific malignant disease; of cancer, in its various forms and denominations. The fatal nature of this complaint; the obscurity in which it is sometimes wrapped; the possibility of overlooking it altogether, or of confounding it with disease of a more innocent character, combine to invest it with peculiar interest.

Carcinoma of the stomach has sometimes no symptoms at all, or none which the most sagacious practitioner would refer to the organ affected.

But even when the stomach is the organ pointed out, by the symptoms, as the probable seat of the malady, those symptoms fail, often, to indicate with any certainty its nature. The effects of the carcinomatous disease exhibit no uniformity. The ingestion of food is apt to produce great distress; but differently in different cases; sometimes as soon as the food is swallowed; sometimes not for an hour or two afterwards. Some cases are attended with much pain; some with none at all. One patient vomits continually; another has little or no vomiting from first to last.

Can these differences be in any way accounted for? Partly they may. By analyzing case after case, we approximate to a knowledge of their causes. But this knowledge is yet far from being complete.

One circumstance that has a considerable influence upon the symptoms, is the *situation* of the disease. In respect to this point there are certain general rules which are for the most part true. Still we can speak of them only as applicable *on the average;* they are not absolute or infallible.

The rules are these:

1st. That there is more suffering, *cæteris paribus*, when the cancerous disease is situated at, or very near, either extremity or orifice of the stomach, than when it occupies the intermediate parts; whether in the greater or in the lesser curvature.

2d. When the cardia, and its immediate neighborhood, is the part solely or principally diseased, the food and drink find a hindrance in passing into the stomach; but being once there, the distress is over, The symptoms are very like those of stricture of the œsophagus. The morsel reaches the bottom of that tube, and there causes uneasiness, till at length it is brought up again through the mouth, or passes gradually in the natural direction.

3d. That when, on the other hand, the disease is limited to the pyloric end of the stomach, the food enters that bag readily enough and remains there for a certain time; then uneasy sensations arise, and the imperfectly digested meal is apt to be rejected by vomiting.

It is the difficulty of passing the *doorway* in these cases, that gives rise to the principal suffering; the difficulty of getting into or the difficulty of getting out of the stomach. But when the disease is confined to the intermediate space, no such difficulty occurs; and therefore little or no pain.

The causes are no more known than are those of cancer in general. A cancerous diathesis constitutes the predisposition, which may be developed by various causes—amongst which has been reckoned the habit of drinking ardent spirits when fasting. (Andral.) It would seem to be unquestionable, that the predisposition may be communicated by hereditary organization. The disease is most common between the ages of thirty-five and sixty.

Diagnosis.—When scirrhus exists, there may be pain at the spot which is affected; and that pain may go through to the back, and be increased on taking food. Besides pain, there may be all the symptoms of indigestion; and there may be great nausea and vomiting; so that nothing can be retained on the stomach. If it be the *cardia* which is the seat of the affection, the food is generally rejected immediately. Sometimes the food will pass the cardia, and be rejected immediately, or five or ten minutes after-

wards. But if it be the *plyorus* in which the disease resides, then the food will generally be retained for some time; perhaps for half an hour, or more. There is no general rule for the time. There may be pain in the region of the cardia, or pain in the region of the pylorus. In the case of the cardia, we may find great difficulty in passing a probang into the stomach, for there may be a stricture at the part; but when the pylorus is affected, there is not only severe pain in that region, but at last there is a tumour. In that case, there is generally emaciation, and a sallowness of look; and as might be called "cancerous cachexia." The vomited matter is sometimes very offensive—sometimes bloody, and sometimes the eructations are exceedingly fetid.

Nothing, however, is more common, than to have dreadful disease in these parts, with scarcely any symptoms whatever. Every practitioner must have seen extreme disease in the stomach,—great ulceration of it,—decided cancerous and other malignant diseases of this part,—without any pain worth naming; without any vomiting till just before death, and without any other symptom than perhaps extreme weakness, paleness, and some obscure uneasiness about the stomach; and perhaps not even that. It is sometimes extraordinary to open stomachs, and see the disease which exists there, without any symptoms having taken place, or symptoms of a very slight character. When the pylorus is affected, we occasionally have jaundice, from pressure on the hepatic duct, or on the "ductus communis choledochus." Occasionally in this disease, as well as in an affection of other parts of the stomach, there is vomiting of a very fetid secretion, and sometimes of blood; and the blood will pass through the pylorus to the intestines, so as to appear in the motions.

There is not one of the local symptoms of this complaint, that may not be absent. Sometimes there is no vomiting; sometimes there is no pain; and it is only by a very careful observation—indeed, by considering that there are no signs of derangement of other organs, that we frequently make up our minds that the disease is probably situated in the stomach. Sometimes there is very little more than dyspepsia; and sometimes people eat well, and are but little troubled with indigestion; but, at last, there is generally more or less hectic.

Sometimes the sickness and vomiting are urgent even when the stomach contains no food; and the matters rejected are of various character and appearance. They often resemble coffee-grounds, and consist, no doubt, of altered blood. Vomiting of this kind is a very pregnant sign of *organic* mischief in the stomach.

Emaciation is another ugly circumstance in these cases; and forms a strong ground of presumption that the symptoms depend upon structural diseases. Yet it is not a uniform consequence, even of malignant disorganization of the stomach. Napoleon Bonaparte was very fat when he died. His omentum is described as having been "remarkably fat;" and the "fat was upwards of an inch thick upon his sternum, and one inch and a half upon his abdomen."

The existence of a palpable tumour strengthens the unfavorable diagnosis. But this is far from being a constant phenomenon. It is not even pathognomonic when it does occur. The diseased head of the pancreas has been mistaken for a thickened pylorus. The stomach is liable also to be dragged much out of its place; and then a thickened pylorus may be mistaken for something else. Sometimes the form of the stomach may be distinctly traced. In the person of a medical practitioner who died lately in this neighborhood, the shape of the organ, its occasional peristaltic motions, and the irregular and hardened pylorus, were plainly to be felt. They might indeed almost be *seen*, in the hollow and attenuated abdomen. When a tumour is ascertained to belong to the stomach, it indicates disease of the pylorus rather than of the cardia.

It is a curious feature in these malignant diseases of the stomach, that the symptoms sometimes remit, in a remarkable manner, so as to excite a hope in the mind of the patient, and in that of his medical attendant, that the nature of the malady had been mistaken, and that recovery is about to take place. But the truce is not for long. Frightful disorganization is at length produced, ragged ulceration, perforation of the coats of the stomach, adhesion to the parts adjacent, which thus are constituted adventitious walls; and inevitable death at last.

Treatment.—We cannot expect to cure this disease; our treatment must therefore be only palliative. Emetics will be found beneficial, and the diet must be mostly of a mucilaginous character. We must support the strength of the patient, and alleviate the symptoms as they arise. If there is constant nausea, small doses of lobelia will mitigate this symptom. If the cardiac portion of the stomach is the seat of the disease, and there is difficulty of swallowing, the patient may be relieved by nutritious and stimulating enemata. The acid eructations may be palliated by the bi-carbonate of soda, or by magnesia; mild aperients to be given. The pain can generally be better alleviated

by a vapor bath or an emetic, than by the opiates so universally recommended by the old authors. As a general rule, milk diet is most appropriate, but, should this disagree, the farinaceous preparations—as arrow-root, or sago, or animal broths—may be substituted. Frequently, tender meat will be digested; and, where this is the case, it may be allowed, with boiled rice for the vegetable.

HÆMATEMESIS—BLEEDING FROM THE STOMACH.

Hemorrhage from the stomach is a complaint, or a symptom, that presents several points of interest and importance. We use the phrase "hemorrhage from the stomach," rather than the single term "hæmatemesis," because that term, signifying strictly a *vomiting* of blood, does not necessarily mean hemorrhage *from the stomach;* nor, indeed, does it always accompany such hemorrhage, although it is one of its most common and most striking symptoms.

Hemorrhage happens under various circumstances; and is attended with different degrees of danger. 1. The bleeding may be idiopathic. 2. It may be vicarious of some other habitual hemorrhage. 3. It may depend upon disease or injury of the stomach itself. 4. It may be the consequence of disease situated elsewhere, and producing, mechanically, a plethora of the veins of the stomach. 5. It may result from a morbid condition of the blood, and form one symptom of a more general disease; as in the passive hemorrhages of puerpura and sea-scurvy. Each of these varieties requires a short notice.

1. Hemorrhage strictly *idiopathic—i. e.*, independent of any apparent change of texture, whether in the surface itself, or in any part obviously capable of influencing its blood-vessels—is as rare, from the mucous membrane of the *stomach*, as from that of the *lungs.*

2. But hemorrhage from the stomach, occurring in connection with other constitutional hemorrhages, or in their stead—and above all, occurring *vicariously* of menstruation—is *abundantly* common. It is the most common, indeed, of all the species of *hemmorrhage by derivation.* Patients will sometimes menstruate for years together through the lungs; without any apparent injury to their general health.

Gastric hemorrhage of this kind, vicarious of regular menstru-

ation, is not generally thought to have any tendency to shorten the existence of those who are afflicted with it. Cullen states broadly that this state of hæmatemesis is hardly ever a dangerous disorder: and is is true. Yet it is not so *entirely* free from peril as to preclude the necessity of *some* caution and qualification in stating the prognosis. The exhaustion from the mere loss of blood is sometimes so great as to create serious alarm for the patient's safety.

3. Gastric hemorrhage, by the way of exhalation, is often a consequence of *disease or injury of the stomach itself*. It is sometimes one of the earliest declaratory symptoms of scirrhus or cancer of that organ—occurring long prior to ulceration. Hæmatemesis attends, also, very commonly, the *ultimate* stages of that fatal disease: and then it may be owing to the erosion of some vessel of notable magnitude, in the course of the process of disorganization, as in the examples already spoken of: or (what we believe is far more common) it may result from a kind of general oozing or exhalation from the ulcerating surface.

4. On the other hand, intense *passive* congestion—congestion arising from the detention of blood in the *veins* by some mechanical obstacle to its progress—is a very common source of gastric hemorrhage. Hæmatemesis is therefore an occasional symptom of obstructive disease of the heart. Much more frequently, however, it depends upon abdominal changes. The hemorrhage is symptomatic of disease situated not in the stomach itself, but elsewhere. And the viscera with the diseases or morbid conditions of which bleeding from the stomach is most often connected, are the liver and the spleen.

All this is well known: and it is easy to see, from the peculiar construction of the venous apparatus in the abdomen, how disease of one or both of these viscera may produce mechanical congestion of the submucous capillary tissue; and how that congestion may be relieved, under certain circumstances, by the effusion of serous fluid on the one or the other surface, ascites or diarrhœa, as the case may be; or under *other* circumstances, not perhaps easily discriminated or well understood, by the extravasation of the collected blood itself. It would be superfluous to describe the peculiar distribution and functions of the vessels which return the main portion of the venous blood from the stomach and intestines towards the heart. It seems highly probable that one at least of the offices of the *spleen* is to provide a receptacle or reservoir for this blood when its free passage through the portal vessels is tempora-

rily obstructed. It then becomes a sort of safety-valve (if such an illustration be allowable), which obviates the danger that might otherwise arise to more vital parts from any great or sudden disturbance of the venous circulation. The stress of the congestion is continually felt in the submucous capillary system; and the hemorrhage, which is apt in such cases to occur from the loaded membrane, receives a simple solution upon principles almost purely mechanical. Nay, the very circumstances which lead to the effusion of the blood from the *mucous* surface on the one side, rather than from the *serous* on the other, may perhaps be themselves susceptible of mechanical explanation.

Gastric hemorrhage, symptomatic of hepatic disease, is chiefly to be looked for in those morbid conditions of the liver which imply obstruction of the portal vein and of its ramifications. We are not surprised, therefore, to find it coincident, often, with a contracted and shrunken state of that organ. The state of the spleen, on the contrary, for reasons that must be obvious to you, is uniformly, in the cases we are now considering, a state of *enlargement.* And the augmentation of bulk is not so much to be ascribed to disease inherent in its proper texture, as to distension by the mere quantity of blood which it holds. The internal structure of the spleen furnishes a credible presumption in favor of that view of one of its uses to which I just now alluded; and this structure, and this presumed function, when considered together, throw a strong light upon some of the pathological relations of the spleen which well deserve attention.

When gastric hemorrhage results from hepatic obstruction, there is almost always *intestinal* hemorrhage also. At any rate there are almost always black alvine evacuations, like tar or dark paint. This form of disease has therefore been called *melena.*— The ancients supposed that the unnatural stools consisted of black *bile.*

5. Gastric hemorrhage, resulting from *changes in the blood* itself, occurs in sea-scurvy, in puerpura hemorrhagica, and in the yellow fever. Being merely a symptom in these cases, it requires no separate consideration here.

Blows received on the epigastric region, or sharp substances passed into the stomach, may occasion the disease; but this is not usual. Hyperæmia may likewise take place in the vessels of the stomach under inappreciable circumstances; and, occasionally the transudation of blood would appear to depend upon active gastritis—the vomiting of blood being accompanied by epigastric ten-

derness, heat of skin, and general febrile excitement. At other times, the cohesion of the coats of the stomach may be lessened, so that the vessels are more loosely protected, and therefore, more readily admit of distension; hence, transudation of blood occurs, especially if the parietes of the vessels participate in the softening. We can thus understand, that hæmatemesis may be a symptom of softening, of perforation, and of cancer of the stomach.—In the two last diseases, a vessel may be perforated, and death take place suddenly, in consequence of the copious discharge.

Diagnosis.—When a *large* quantity of blood is poured into the stomach, whatever may have been its source, it appears to have a nauseating and emetic effect. At least the blood ejected in hæmatemesis is almost always considerable in amount. The vomiting may be dependent on the mere distension of the stomach, which appears to be tolerant of the presence of the blood up to a certain point, but no further. A small quantity may, doubtless, pass all of it onwards through the pylorus, after undergoing, more or less completely, the process of digestion in the stomach; and a *portion* of the blood pursues that course in most instances. But when it is vomited, it comes up in large quantities, usually of a dark color, and more or less coagulated. Sometimes the coagula have evidently been moulded in the stomach; and sometimes clots are thrown up, partially deprived of the coloring matter of the blood, and resembling the fibrinous polypi so often met with in the cavities of the heart. Of course the degree of coagulum of the blood, and of its separation into serum and crassamentum, will depend upon the time that it remains in the stomach; and this again would seem to bear a proportion to the rate of its effusion.

The blood that is vomited is almost always of a dark color; while that which is coughed up is most frequently florid and bright. Why is this? We are told that the blood which comes from the lungs is rendered florid by the admixture of atmospheric air. But this is not the whole of the matter. Neither can we say that the dark hue of the blood ejected in hæmatemesis is always, or solely due to some morbid alteration effected in that fluid while yet circulating in its proper vessels. There is another cause, which till of late years, was much overlooked, but which frequently changes the color and appearance of the blood *after* it has been extravasated into the stomach; and that in so great a degree as sometimes to render doubtful, or to disguise altogether, the real nature of the fluid vomited. We mean the chemical

agency of the gastric acid. The effect of acids in blackening the blood out of the body is well known; and it is somewhat singular that the ascertained existence of an acid secretion in the stomach, varying in quantity at different times and under different circumstances, was not sooner applied in explanation of the dark color of the blood, and its occasional blackness, when vomited.—The degree of blackness will be in proportion to the relative quantity of acid which it meets with in the stomach, and the intimacy of the admixture. Sometimes the blood is clotted and not very much altered in color; sometimes it is grumous, brown, of a chocolate tint, or like coffee grounds. This generally denotes the existence of *organic disease*; and the appearance of the blood is probably modified in some degree by the morbid process that leads to its effusion. There is good reason for believing that in the *black vomit* of the yellow fever, the color of the blood undergoes alteration, even while it is yet circulating through the blood-vessels; but that the black appearance of the matter vomited is in great part owing to the chemical action of the gastric acid, may be inferred from the fact, that the fluid so discharged is always intensely acid. Andral has described an effusion of black liquid into the stomach, as an example of *melanosis*. He states at the same time that an accurate analysis of the liquid showed its composition to be very nearly the same with that of the blood. May we not suspect that this inky fluid really consisted of blood that had been blackened, subsequently to its extravasation, by the acid with which it mixed in the stomach? Upon the same principle may be explained the brown or almost black color of the spots which are sometimes seen in the substance of the mucous membrane of the stomach, or even beneath it; and which have also been set down as melanotic. They are so like, in all circumstances, except in the single particular of color, to the crimson spots which are obviously formed by minute extravasations of blood in the same parts, that we can scarcely refer them to any other source.

When the blood is injected through the œsophagus and mouth, we have demonstrative evidence of the existence of *hemorrhage;* and the *diagnosis of hæmatemesis* may appear to be so simple as to admit of neither mistake nor doubt. The diagnosis of *hemorrhage from the stomach*, however, is really oftentimes difficult and obscure, and to be established by presumptive evidence alone.

In the first place, bleeding may take place from the mucous

membrane of the stomach, and no hæmatemesis ensue, especially when the blood is poured forth in small quantities and slowly. In these cases the blood becomes visible only in the stools, where it may not be looked for, or if seen, may not always be recognized, in consequence of the changes it has undergone during its passage through the intestinal canal. And even supposing that its presence is detected in the alvine evacuations, it will remain uncertain in what part of that long canal it was effused. The hemorrhage may even be profuse, and the patient may die, without *any* escape of the blood externally. There is a case related by Frank, in which death took place by hemorrhage of the stomach without hæmatemesis ; and both the stomach and the intestines were found distended by an enormous coagulum of blood which had assumed their form.

Even when the blood is ejected by the mouth, the exercise of some care and sagacity is occasionally, though not always required, in order to determine the part from which it was originally poured out.

Thus blood may be swallowed, and afterwards vomited : and so we may have hæmatemesis without hemorrhage from the stomach ; just as we may have hemorrhage from the stomach without hæmatemesis. There are cases of slow bleeding from the lungs, the fauces, the mouth, or the nasal cavities, where the blood, collecting in the pharynx, provokes from time to time, an instinctive and involuntary act of deglutition ; and thus is gradually accumulated in the stomach up to that point at which the organ becomes impatient of its contents, and ejects them by vomiting. This is very apt to happen during sleep, and especially to young children : and as the blood, *when vomited*, is coagulated, and in considerable quantity, it is scarcely possible to conclude, from its mere appearance, that it has proceeded from any source than the stomach itself. If, however, we mistake such cases, our error is likely to produce much needless alarm, and to lead us to unnecessary activity in treating them. We are assisted towards forming a right judgment (when our attention happens to be directed to this source of fallacy,) partly by the general history and symptoms, and partly by an examination of the mouth, fauces and nostrils, to ascertain whether any coagula, or other marks of hemorrhage, are visible on the mucous membrane belonging to those parts.

However equivocal certain cases may be at first sight, we may generally guide ourselves to a correct decision by a careful inves-

tigation of the circumstances that *precede*, *accompany* and *follow* the hemorrhage. *Vomiting* of blood is commonly preceded by a sensation of weight and uneasiness in the epigastrium; and by nausea. Hæmatemesis is also, more frequently than hæmoptysis, ushered in by paleness of the face, dimness of vision, and an approach to syncope, or even actual fainting. These symptoms are not to be regarded as premonitory of the *hemorrhage*, although they have been so considered by some; they are rather a sign that it has already taken place; and yet they are preliminary of the *hæmatemesis*. Occurring before the blood comes up, they cannot be ascribed to alarm at the *sight* of it. On the other hand, *hæmoptysis* is wont to be announced by dyspnœa, cough, tickling in the throat, and a sensation as if of *bubbling* within the thorax.—Most commonly, too, before the expulsion of much blood from the lungs, some sputa are *coughed* up, composed more or less of that fluid. The symptoms that usually *succeed* the hemorrhage, in either case, afford equally valuable assistance to our judgment, in cases that might otherwise be doubtful. Generally copious hæmoptysis goes on, in a succession of mouthfuls, for some time: whereas there is mostly, only one access of full vomiting. At any rate, at the close of pulmonary hemorrhage, the patient manifestly *coughs* up, and expectorates, smaller quantities of blood; while we usually may observe that, a few hours after hæmatemesis has occurred, slight griping pains come on in the abdomen, and a portion of blood is got rid of from the bowels.

Treatment.—With respect to the *treatment* that should be adopted in cases of hemorrhage from the stomach, it must be apparent, from what has just been said of the many different morbid conditions upon which it may depend, or with which it may be essentially connected, that remedies are, in most cases, rather to be directed against the disease of which the hæmatemesis is a symptom, than against that symptom itself. But sometimes we are obliged to treat the symptom, either because we are not certain of the exact nature of its cause, or because the condition out of which it springs is not within our reach.

Thus if it arises from obstructed menstruation, our remedies must be such as will bring about the monthly discharge, so, if it is caused by any other metastasis the same general rules will apapply. Astringents will in most cases be indicated. Among the best, we must recognize the Geranium maculatum, (Cranesbill,) a decoction of the Powdered Root, a teaspoonful to a teacup of hot water, and drank cold will generally stop the hemor-

rhage at once. The oil of turpentine is also highly recommended, and also the same treatment we have recommended for hæmoptysis and other hemorrhages.

In cases of hemorrhage from the stomach, as indeed of all hemorrhages, it is essential to place the patient upon a dry diet, or at least not to allow fluid too freely. Under the loss of blood, the vessels greedily imbibe fluid, and the quantity of blood in them is soon as great as it was previously, but it is blood of less consistence, and, consequently, more favorable to the recurrence of the hemorrhage. To allay thirst, the patient should take small pieces of ice into his mouth, or small quantities of iced lemonade—especially lemonade formed of the sulphuric acid—or slices of orange kept as cool as ice can make them.

Charcoal, in table-spoonful doses, repeated as circumstances seem to require, will be found a useful auxillary to the other means. It will operate as a styptic to check the bleeding, as a laxative to cleanse the intestines, and as an anti-septic to prevent the putridity of the blood in the bowels. A strong decoction of yellow dock root in sweet milk, taken in doses of a gill three times a day, and a pill of white pine turpentine once a day, is recommended, by Dr. J. Williams, as infallible in this complaint. Common salt, in small doses, will also very frequently check it.

Patients recovering from this disease, ought to use a nutritious diet of easy digestion, and abstain from all violent or long continued exertion, to prevent relapses, which are liable to occur.

To most persons, it may appear an improper practice to give an emetic in cases of bleeding from the stomach; but if the stomach be oppressed with a mass of blood, there is no other means upon which any confidence can be placed but prompt emetics.

Professor Chapman, in his lectures, relates a case of a young woman who was seized with vomiting blood, and when he first saw her she had thrown up three pints of blood. Astringents and various other remedies were employed without effect; she became much exhausted, and continued to throw up blood. An emetic of ipecacuanha was given, and a large mass of black blood was thrown from the stomach, after which she revived, the bleeding ceased, and she did well. But for the emetic, this patient would doubtless have died from the oppressed condition of the stomach. Other cases were related by the Professor, where emetics proved effectual after the usual remedies had failed. In one instance, the bleeding returned after the operation of the first emetic; a second was given, and after its operation there was no return of the bleeding.

Emetics to be employed in bleeding from the stomach, may be prepared in the usual form. The following will do very well in any case :—

Put a teaspoonful of Number Three preparation, a teaspoonful of green Lobelia, and a teaspoonful of sugar, into a teacup; rub these well, and then fill the teacup half or two-thirds full of strong bayberry tea. To be stirred well, and taken at once. The dose to be repeated once or twice, at intervals of fifteen or twenty minutes.

Emetics operate more easily and effectually after a vapor bath; and when the patient has strength to sit up and take a bath, it is a good practice to administer one, and also to give an injection before administering an emetic. The circumstances of the case, however, must govern the treatment; for instance, if the patient be very feeble, and suffering great distress and oppression of the stomach, an emetic should be given at once.

After the hemorrhage is stopped, strengthening medicine must be given, for which the *restorative* and *wine bitters* are very valuable. The *anti-dyspeptic pill* should be given, to keep the bowels in a soluble state; and even though they be soluble, a *purgative* must occasionally be administered. The patient should exercise moderately, and never fatigue or strain himself in any way; likewise avoid sudden transitions from heat and cold: he will find it serviceable to wear a *strengthening plaster* on the pit of the stomach. His diet should be light, but nutritious. A cold decoction of bugle weed or *water hoarhound* (Lycopus virginicus) may be used for constant drink, and also *flea bane;* they are *tonic* and *astringent.*

DYSPEPSIA—INDIGESTION.

Description and Causes.—"Indigestion" is usually termed in medicine "dyspepsia," and is sometimes mentioned under the name of "*apepsia*"—the one meaning "difficult digestion" (from δυς, with *difficulty;* and πεπτω, *to concoct;*) and the other "*no* digestion" at all (from α *privative*, and πεπτω, *to concoct.*) However, these all mean precisely the same thing. We are now, therefore, to consider that derangement of the digestive organs, which is generally attended with indigestion; but many of the symptoms of which take place *without* indigestion. Many persons will di-

gest very well; and yet, when they have no food in the stomach, they are filled with wind. But this ceases on food being taken.

If any organ in the body suffer severely, the stomach is very much disposed to sympathize with it. The stomach, the heart, and the head are particularly affected when any material derangement occurs in the frame—the stomach more particularly, perhaps, than either of the others; and the intestines generally become more or less affected at the same time. We know, that, in all acute diseases—in all violent accidents, the stomach feels the shock. There is anorexia (loss of appetite), frequently nausea and vomiting, and either costiveness or purging. The fæces generally become depraved in their quality; uneasiness is usually felt in the stomach or intestines; and there is, perhaps, even pain and tenderness. Very frequently, the patient is rendered more uncomfortable by the sympathetic disturbance of the stomach and bowels, than by the original affection itself. In chronic diseases of the heart, liver, and lungs, for instance, the stomach and intestines are most materially affected. But besides these effects, mere *sympathetic* occurrences, from the derangement of other organs—we have these parts deranged *originally*.

This disease chiefly arises in persons between thirty and forty years of age, and is principally to be met with in those who devote much time to study, or who lead either a very sedentary or irregular life. A great singularity attendant on it is, that it may, and often does, continue a great length of time, without any aggravation or remission of the symtoms. The disease is a frequent attendant on chronic weakness.

In Dr. Parry's opinion, idiopathic dyspepsia consists in a morbid fullness of the vessels of the villous coat of the stomach.

Great grief and uneasiness of mind, intense study, indolence, profuse evacuations, excess in venery, hard drinking, particularly of spirituous liquors, irregularity of life, too frequent use of warm diluent liquors, and of tea, tobacco, opium, and other narcotics, immoderate repletion and over-distension of the stomach, very frequent rejection of the saliva, in consequence of smoking or chewing tobacco, or a diminution or interruption of the due secretion of it, a deficiency in the secretion of the bile, pancreatic or gastric joice, diseases of the liver and spleen, hysteria, hypochondriasis, and exposure to moist and cold air, when without exercise, are the causes which usually occasion dyspepsia. Everything which diminishes the amount of nervous influence transmitted to the stomach, weakens the digestive action.

Unless where dyspepsia arises from slight inflammation and thickening of the coats of the stomach, and then exists as a primary disease, it is almost universally symptomatic of organic affection of the liver or spleen, and not an idiopathic disease; of which the practitioner may be convinced by paying due attention to the color of the alvine and renal discharges, to the pasty or doughy feel of the skin, and the dingy pale hepatic hue of the countenance, that generally attend dyspepsia.

In the first place, the cause may be in the groin. A hernia will produce all these symptoms. If a person have a rupture, he is sure to be troubled with irregularity of the bowels, costiveness, extreme flatulence, and perhaps gastrodynia and indigestion. If the hernia return into the abdomen, these symptoms may all vanish. Any sort of pressure may have the same effect.

Obstruction or costiveness, without any fault in the bowels themselves—costiveness from persons neglecting to relieve their bowels, or any accidental obstruction whatever—may produce these symptoms. The presence of worms, or any injurious substances which the patient has taken, may give rise to them—the stomach and bowels themselves being disposed to perform their functions properly, if these mechanical or accidental circumstances were not forced upon them.

Occasionally, these symptoms entirely arise from the individual having taken articles, of which the stomach can make nothing —which it cannot manage. These ingesta may be altogether improper for any one to take; or the individual may have some particular idiosyncrasy—peculiarity of constitution. Some persons have a stomach, which can digest things in general very well; but there may be one or two things, which their stomach cannot digest; and if these be taken there is dyspepsia, and some intestinal derangement. We can hardly say that such a person is ill; because the circumstance only occurs when he has taken some particular article of food.

Excess of Food.—Of course an *excessive quantity* of food, will have the same effect as improper ingesta. Nature not only intends us to eat certain things, and not others, but she also intends us to eat a certain quantity—and therefore, just as a person may have "*diarrhœa* crapulosa," so they may have "*dyspepsia* crapulosa" (from κραιπυλη, *a surfeit*)—the stomach not being in fault, but having more given to it than it ought to have. The author of "Ecclesiasticus" says, that "excesses of meats bringeth sickness."

Nature does not intend lumps of food to go into the stomach. On the contrary, she intends food to be prepared—to pass through a certain process before it enters the great organ of digestion; and therefore imperfect mastification will produce dyspepsia, without any fault of the part itself. Old people, when they lose their teeth, or young ones, when they cannot chew as before, and cannot live on spoon victuals, are very subject to indigestion. But, independently of a particular *quality* of food, or a great *quantity*—variety, or a great discordancy of meats, will occasionally produce dyspepsia.

Diagnosis.—In the first place loss of appetite is a very common symptom; and this is called, in medical language, "anorexia." Sometimes, however, the appetite is not *lost;* it is only *irregular*—the patient being able to eat well one day, though he cannot eat another. Sometimes the anorexia amounts to loathing—the patient not only cannot eat, but the idea of it disgusts him.

Sometimes the appetite is not simply *deficient*, but is *depraved*. This is particularly seen in females; and is called "pica" (*a magpie*—an animal said to be subject to this complaint). Sometimes young ladies long for chalk, cinders, or sand, and they will bite glass—munch it; and, when it is small enough, they will swallow some of it.

Sometimes, however, the appetite is *excessive;* so that people will eat an immense quantity. This is called "bulimia." People will eat many pounds of meat and bread in the course of a day.

Persons laboring under this affection, frequently complain of intense thirst; and their tongue is foul, and covered with a yellow or a creamy mucous. Sometimes it is white, dry, and brown; but, whatever appearance it has, it is worst in the morning. It is frequently red at the same time—either at the tip or at the edges. Sometimes it is the papillæ only that are red. They appear separate—like granules of cayenne-pepper. Sometimes the tongue is red all over; and it may be moist, dry, glazed, or cracked.

There is frequently fœtor of the breath. Sometimes the smell is sour—sometimes it gives one the idea of sour flesh; sometimes it is like cabbage-water; and occasionally it is absolutely fæcal—so that is impossible to stand near the patient. Of course we may have a diseased odor of the breath, from other circumstances than any of these. It will arise from a diseased bone; and sometimes even from carious teeth. This is not so disagreeable to others; but it is very unpleasant to the patient himself—from there being a bad taste in his mouth. Sometimes the taste is bitter; and sometimes, they say, it is particularly offensive.

Eructations are very common in this affection; and these may be either simple or fetid. Those which are inodorous, are generally experienced when the stomach is empty; and probably arise from a secretion of air by the surface of the stomach; but those which are fetid arise from the contents of the stomach undergoing a certain degree of fermentation, or sometimes from the patient being costive. It appears that a portion of the fæcal odor, if not of the fæces, is absorbed; for some persons who are exceedingly costive, have very fetid eructations; which are removed by regulating their bowels. In some persons, it is only when certain articles are taken, that the breath becomes offensive. Sulphuretted hydrogen appears to be given off from the substances in question.

Besides these affections, the stomach sometimes experiences attacks of nausea and vomiting. Some vomit only the food they take; others vomit a viscid secretion. Some vomit more or less constantly; and some vomit only in the morning—and, in the latter case, it usually arises from drinking. When the disease has become very severe, some will vomit on the slightest motion.

To descend lower, there is tightness and fullness of the abdomen—chiefly at the epigastrium, and chiefly after meals. Frequently there is an aching there; and sometimes excessive pain. Occasionally this is experienced only after meals; and occasionally only when the stomach is empty. This pain, if it be unaccompanied with inflammation, passes under the name of "gastrodynia;" and if, with this, there is a flow of fluid into the mouth, the two circumstances together are called "water-brash," or "pyrosis" (from πυρόω, to *burn*). The pain is sometimes sudden—comes on instantly, or at least very rapidly; and is excruciating. It darts back, perhaps, to the spine; and causes the extremities and face to become cold, the pulse to be small, and the surface pale. It passes under the name of "spasms of the stomach." Very frequently, at the same time, there is a large discharge of flatus through the œsophagus—flatus which is usually inodorus. This pain frequently runs to the left shoulder, and down the left arm—like the pain experienced in "angina pectoris."

Besides this *spasmodic* pain—which, for the most part comes on suddenly; or, if it exist constantly, is attended with exacerbations, and is not increased by pressure, there is frequently *inflammatory* pain—not *gastrodynia*, but *gastritic* pain; so that the stomach is tender on pressure, and all ingesta produce great agony. A sensation of heat is induced in the stomach, and up the throat. In some cases, there is a throbbing of the epigastrium—a violent

pulsation; which no doubt has been mistaken, over and over again, for aneurism; and which patients themselves are inclined to believe is aneurism; because, in this state of things, they are much disposed to despond. This has been called "cardialaia," and has been referred, by Sauvages, to a morbid sensibility of the part. Dr. Baillie wrote a paper on this subject, in the fourth volume of the "Transactions of the College of Physicians;" in which he stated that he had been consulted, several times, on this affection; which had been supposed to be aneurism; but which he had not found to be so. He opened persons who died from some other disease, while laboring under this; and found nothing morbid. It is a common symptom.

The bowels are generally irregular; and, for the most part, they are torpid; but sometimes they are relaxed. In other cases we find an alternation of costiveness and relaxation; so that they are never right. The fæces, too, are frequently unhealthy. Frequently they are lumpy; but they are of various morbid degrees of consistence, and of various morbid colors; and frequently they are not of their usual smell. Sometimes there is a great want of bile; and sometimes there is even a degree of icterus. From the irritation of the stomach, the urine usually becomes high-colored; but at other times—especially when there is a great quantity of wind generated in the stomach itself, the urine becomes excessive in quantity, and pale—just as in asthma.

Other parts of the body, however, suffer as well as the gastro-intestinal, or (as it used to be called) the alimentary canal. There is frequently headache—either general, or particularly in the forehead; and very frequently it is confined to one part of the forehead—to one brow. Sometimes it is intermittent; and sometimes absolutely periodical.

Dyspepsia is often connected with phthisis, with leucorrhœa, with amenorrhœa and chlorosis: and some persons imagine that these diseases are *caused* by the dyspepsia. Indigestion may lead indirectly to the development of consumption, by producing debility; but the truer view of the matter seems to be that the dyspepsia is a consequence, rather than an exciting cause, of these complaints. When, for instance, leucorrhœa is cured by topical astringents, as it often may be, the indigestion is frequent-cured too.

One of the worst occasional concomitants of dyspepsia is that peculiar state of the mind just alluded to under the term *hypochondriasis*. This is, in truth, a species of insanity; but it is so

often connected with disorder of the digestive organs, that Cullen, whose descriptions of disease are admirably clear and true, however faulty many of his theories may be, defines hypochondriasis to be "*Dyspepsia*—cum languore, mæstitia, et metu, ex causis non æxuis." In the following short paragraph he completes the picture:

"In certain persons there is a state of mind distinguished by the concurrence of the following circumstances. A languor, listlessness, or want of resolution and activity with respect to all undertakings: a disposition to seriousness, sadness, and timidity; as to all future events, an apprehension of the worst or most unhappy state of them; and therefore, often upon slight grounds, an apprehension of great evil. Such persons are particularly attentive to the state of their own health, to even the smallest change of feeling in their bodies; and from any unusual feeling perhaps of the slightest kind, they apprehend great danger, and even death itself. In respect to all these feelings and apprehensions, there is commonly the most obstinate belief and persuasion."

Treatment.—There are a few simple rules which ought always to be kept in mind in our *treatment* of dyspepsia; although we can seldom enforce them, as they ought to be enforced, upon our patients. What patients want, in general, is some medicine that will relieve them from their discomfort and uneasy feelings, and allow them at the same time, to go on in the indulgence of those habits which have generated the discomfort. And such remedies have not yet been discovered.

One great and indispensable principle in the treatment of indigestion, is that of restricting the *quantity* of food taken at any one time. The gastric juice is probably secreted in a tolerably uniform quantity. The muscular contractions of the stomach must needs be impaired or impeded by much distension of that organ. For both these reasons the amount of food introduced into the stomach should be kept within the limits of its capacity and powers.

Again, as Dr. Abercrombie has well remarked, and as Dr. Beaumont actually saw, various articles of food are soluble in the stomach with various degrees of readiness. Therefore, when the digestion is liable to be easily impaired, it is of great importance not only to refrain from those substances which are known to be soluble with difficulty, but also to avoid mixing together in the stomach different substances which are of different degrees of solubility. Hence there are two reasons why it is salutary to

dine off one dish. First, because we avoid the injurious admixture just adverted to; and, secondly, because we escape that appetite and desire to eat two large a *quantity*, which is provoked by new and various flavors.

And another very important principle, greatly insisted on by Mr. Abernethy, is, that the stomach should have *time* to perform one task before another is imposed upon it. He always made his patients (at least he always strongly exhorted them) to interpose not less than six hours between one meal and another. Allowing three to five hours for the digestion of a meal, and one hour over for the stomach to rest in, Mr. Abernethy's rule seems as much founded in reason as it is justified by experience. But we preach in vain on these topics. Mr. Abernethy was in the habit of saying that no person could be persuaded to pay due attention to his digestive organs, till death, or the dread of death, was staring him in the face.

In the treatment of dyspepsia, three indications must be attended to:

The first is to avoid or remove the remote causes which have been enumerated. A knowledge of the cause which has given rise to it, will point out the best means of relief.

The second is to obviate the symptoms which contribute to continue or aggravate the disease.

The third is to restore the tone of the organ, if possible.

To effect the first of these intentions, it must be the business of the physician to point out to the patient the indispensable necessity of renouncing such habits or pursuits as may have tended to give rise to the disease, as the continued application or frequent repetition of these causes may defeat the use of whatever remedies are employed.

If he leads a fashionable life, it will be necessary for him to forsake the haunts and habits of dissipation; to leave the crowded city, and its alluring amusements, conducted in rooms, where the air he breaths is vitiated and contaminated by the great number of persons collected together; to shun luxurious tables, indolence, and late hours; to retrace the footstep by which he had deviated from simple nature, and to court the country, pure air, moderate exercise, early rising, simple diet, the society of a few selected friends, and pleasing occupations.

To accomplish the second intention of obviating the symptoms which contribute to continue or aggravate the disease, it will be necessary to remove the crudities in the stomach, by giving from

time to time, as circumstances may indicate, lobelia emetics, or full courses of medicine. It will also be necessary to correct the morbid acidity in that organ by alkalies and absorbents, as the subcarbonate of potash, magnesia, chalk, etc., to assuage the pain and flatulency in the stomach and intestines, by giving freely the spice bitters, to which should be added a liberal quantity of nerve powder; and, lastly, to obviate costivenesss by the daily use of the syring (in which should be used a tea-spoonful of composition, and a tea-cup of tepid water,) or if this *will* not be resorted to, such gentle laxatives joined with aromatics, as will promote a ready discharge of the contents of the intestines, without hurrying their action or increasing their excretions. Perhaps as good a formula as any, to answer this indication, is the following: black root and bitter root, each four parts, capsicum one part, to which may be added a suitable quantity of cloves and mace; half a tea-spoonful of the powder to be taken in cold water every four or six hours.

An habitual attention to the removal of costiveness by instituting a regular custom of periodically soliciting an evacuation by voluntary and persevering efforts, will powerfully aid the beneficial effects of the other means we employ. The morning is the proper time for the attempt; and the trial should be prosecuted during at least fifteen minutes, if the peristaltic be not earlier excited to adequate motion. Perhaps a week may be unavailingly employed in this endeavor, but the proposed effect will probably be attained within a month; one month has indeed in numerous instances fully established an habitual call to intestinal evacuation, under circumstances that previously required the almost daily use of aperient medicines.

To accomplish the third intention of restoring the tone of the stomach, the loss of which is to be considered the chief and immediate cause of dyspepsia, we are to employ such medicines as act directly upon this organ, and such remedies and other auxiliary means as have a tendency to strengthen the system in general.

The medicines best calculated to accomplish this object, are the spice bitters, to which should be conjoined slippery elm and astringent tonics; and when there is much debility, and weakness of the assimilating organs, irregular disgestion, flatulent distention of the abdomen, much anxiety, difficult respiration from sympathy with the stomach, and occasional vomiting of viscid mucus; frequent light lobelia emetics, added to the above mentioned treatment, will be eminently serviceable.

As it sometimes happens, that a diminution of the gastric juices is the cause of dypspepsia, the treatment above advised cannot fail to hold out the greatest hope of relief. To strengthen the system, whereby the powers of the stomach will be made stronger, the patient should take daily exercise on horseback, which will be preferable to walking, as being less fatiguing; he should breathe pure, dry, and temperate air; rise and retire at regular hours; lead a temperate life, and adapt his dress to the changes and temperature of the climate.

It may be proper to remark, also, that the frequent vapor bath, and the flesh-brush, will furnish subsidiary aid in the progress of a permanent cure.

The diet in this complaint ought to be nutritive and generous, avoiding a repetition of that which is proved by experience injurious.

Dyspeptic patients are very importunate to know *what* they may eat, and what they may drink, but it is impossible to lay down any general rules to suit every case. The best advice is to recommend the patient to use such food as he finds by experience to suit him best, and such as gives him the most ease.

To the confirmed hypochondriac, prescribe *change;* change of place, change of air, change of scenery and of society. The withdrawal of the mind from its ordinary pursuits and cares; the direction of the attention from one's self by new and varied objects; exercise in the open air; a holliday from toil, both intellectual and physical, will often do more than all medicaments.

In females, this disorder very frequently arises from the state of the uterus. In pregnancy, it is very common for the stomach to fall into such a state of disorder, that the patient's life, for a time, is rendered miserable; and occasionally, from the constant vomiting—from the inability to retain any food whatever on the stomach, life has really been brought into danger. In very extreme cases, it has been judged right even to induce premature labour, for the purpose of putting a stop to this great disorder.—In ordinary cases, however, although we cannot cure the nauseau and vomiting, much may generally be done to alleviate them; not by removing the pregnancy of the womb, but by lessening the irritability of the stomach, so as make it sympathize with the uterus as little as possible.

In these cases we have found the cold bath, and the Female Restorative Bitters, made slightly laxative with the Leptandrin to succeed well with female patients.

The Compound Lobelia Pills probably constitute one of the best preparations ever employed for the cure of ordinary dyspepsia. From two to four pills should be taken every night at bedtime; and if the patient be confined to the house, the pills may be taken at intervals of an hour or two, in order to keep the system moderately under their influence. Taking them in quantities sufficient to cause vomiting every few days will answer the place of courses of medicine.

Dyspepsia of a mild character may be cured by taking a dose of composition two or three times a day. When the patient is exposed to the weather it is best not to prepare the composition in boiling water, but first moisten the powder, and then add half a teacupful of *lukewarm* water, stir it well, and swallow it before it settles.

The Spice Bitters may be taken in the same way and for the same purpose as composition.

The Conserve of Hollyhock is a mild stimulant and tonic, and useful in cases of feeble digestion. It is a convenient medicine for persons traveling.

Purified charcoal being an absorbent and anti-septic, and operating as a mechanical stimulant to the bowels, may be used with advantage in cases of sour stomach, attended with costiveness.

When the stomach has been cleansed the following pills may be taken: Take pulverized lobelia, one scruple, or a tea-spoonful; add three times the quantity of castile soap, scraped fine; mix well together; and, if necessary, a little molasses or mucilage may be added; form into pills the size of a pea, and take one or two three or four times a day; they ought not to produce nausea. Those who prefer may take the powder of lobelia, one or two grains, as often during the day; this strengthens the digestive organs and excites a gentle action on the bowels and skin. During the use of these pills the patient may take the following tea: Take boneset, tansy, wormwood, hoarhound, equal parts, make a tea, and drink a wineglassful, cold, three or four times during the day.

ENTERITIS—INFLAMMATION OF THE BOWELS.

Description and Causes.—This disease is called "enteritis" (from εντερον, *an intestine*; and "itis,"—*inflammation*;) because it is an inflammation of the substance of the intestines. But similar symptoms, in many respects, are produced by mere spasm:—

that is to say, perfect obstruction, together with vomiting and violent pain, though pain of a different character; and then the disease is termed colic;—"enteritis" being essentially *inflammation*, but "colic" being essentially *spasm*. When the spasm ceases, however, then inflammation may come on; and we then have a case of decided enteritis.

Like gastritis, enteritis may be divided into the *acute* and the *chronic*, and both, again, may be subdivided into enteritis of the peritoneal coat, and enteritis of the mucous coat;—the muscular coat being rarely, perhaps, the primary seat of inflammation, but not unfrequently of a severe neuralgic affection, at times of a gouty or rheumatic character.

Acute inflammation of the peritoneal coat may attack any portion of the small intestine, but the essential phenomena and pathological characters are alike in all. When presumed to be seated in the duodenum, it has been termed *Duodenitis* or *Dodecadactylitis:* in the jejunum, *Jejunitis;* and in the ileum, *Ileitis;* but considerable confusion has resulted in consequence of these terms having been often employed indiscriminately, for both inflammation of the peritoneal and of the mucous membranes of those portions of the small intestine.

This disease is caused by any thing which will produce inflammation; cold and wet applied externally, and cold internally; and it is induced by any thing which occasions obstruction. If there be a hernia, and the part becomes girt, then we have enteritis.—If the fæces become black and indurated, and will not pass, then we may have this disease. Whatever causes an obstruction, is sure to produce this affection; provided it continue sufficiently long for the disease to be set up.

Diagnosis.—Enteritis comes on with an acute pain, extending in general over the whole of the abdomen, but more especially round the naval, which is greatly aggravated on pressure; accompanied with eructations, sickness at the stomach, a vomiting of bilious matter, obstinate costiveness, thirst, heat, great anxiety, and a quick, and hard, small pulse. After a short time the pain becomes more severe, the bowels are affected with slight spasms, the whole region of the abdomen is highly painful to the touch, and seems drawn together in lumpy contractions; invincible costiveness prevails, and the urine is voided with great difficulty and pain.

The inflammation continuing to proceed with violence, terminates at last in ulceration, scirrhus, or gangrene; or it goes off by resolution.

Enteritis is always attended with considerable danger, as it often terminates in gangrene in the space of a few hours from its commencement: this event is marked by a sudden remission of pain, sinking and irregularity of the pulse, shrinking of the features, cold sweats, syncope, suppression of urine, hiccough, and distention of the belly, which sounds on being struck with the finger; and it frequently proves fatal likewise, during the inflammatory stage. If the pains abate gradually, if natural stools be passed, if a universal diaphoresis, attended with a firm, equal pulse, comes on, or if a copious discharge of loaded urine, with the same kind of pulse, takes place, a resolution and favorable termination may be expected.

Its termination in ulceration, which is not common, can only be known by the febrile symptoms remitting; by occasional pains and rigors; and by pus being mixed with the evacuations from the bowels.

Dissections of this disease show that the inflammation pervades the intestinal tube to a very considerable extent; that adhesions of the diseased portion to contiguous parts are often formed; and that, in some cases, the intestines are in a gangrenous state, or that ulcerations have formed. They likewise show, that besides obstinate obstructions, intussusception, constrictions, and twistings, are often to be met with; and that in most cases the peritoneum is more or less affected, and is perceived at times to be covered with a layer of coagulable lymph. The mesentery and omentum are also found much inflamed.

The nausea and vomiting are often most distressing. The patient not only rejects immediately whatever food, drink and medicine he swallows, but he has fits of retching when the stomach is empty. In some instances, matters are cast up having the appearance, and something of the odor, of liquid feces: or resembling, at any rate, the offensive fluids which are found in the small intestines after death in these cases.

Although the fever, in the outset, may be high, and the pulse strong and hard, it soon becomes (as in all acute abdominal inflammations) small and wiry; or weak, and like a thread. In bad cases, as the disease proceeds, the abdomen begins to swell, becomes tympanitic; hiccough sometimes comes on; the pulse intermits or beats irregularly; the extremities grow cold; the features are sharpened and ghastly; cold sweats break out; the pain ceases perhaps; and the sphincters relax. The head is generally unaffected. Now and then delirium occurs late in the disease;

but much more frequently the intellect remains clear to the very last. Death begins at the heart, and takes place in the way of asthma.

You may probably have observed that the symptoms which we have been describing are just the symptoms which the surgeon so frequently encounters in cases of strangulated hernia. The symptoms of that surgical complaint are, in truth, most commonly at least, the symptoms of enteritis, caused by the forcible closure of the bowel. Obstruction to the passage of the contents of the gut gives rise to its inflammation. And we often find, after death preceded by the signs of enteritis, an internal mechanical obstruction—an internal strangulated hernia. In some cases bands or strings of coagulable lymph, the products of bygone inflammation, have formed snares (so to speak) for the gut, which at length they catch and constrict. They do no harm till some coil of intestine gets beneath or beyond them; and then they strangle it, as the phrase is.

Sometimes, again, there is, intersusception; the upper part of the tube slips into the lower, fills it up; obstructs it; and inflammation fixes it there. Or it may be that a chronic thickening of the coats of the intestine has narrowed its channel; or a tumor presses upon the intestine from without; or some foreign substance, or morbid accumulation, plugs it up within; in all which cases a chronic disorder passes at length into acute inflammation. A very small hernia at one of the usual orifices—not large enough to manifest itself externally—is sometimes the cause of the obstruction; even though only a portion of one side of the gut may be nipped in the aperture.

The most prominent symptom is—pain over the region of the inflammed intestine, generally severe, and always increased by pressure, sometimes even by the light pressure of the bed-clothes. If the duodenum be inflamed, the pain will be seated high up in the pyloric region, and shoot back towards the kidneys; if the inflammation be lower down in the jejunum, and especially in the ileum, the pain will generally be referred to the region of the umbilicus. In very acute cases, nausea and vomiting are almost always present; the tongue is usually more or less covered with a white fur; the respiration short and quick, mainly owing to the pain produced by any great depression of the diaphragm, but partly to the general disorder of functions; the pulse is quicker than natural, but instead of being strong—as in many cases of inflammation, which are devoid of danger—as in amygdalitis, it is

small and contracted, but if careful examination be made, it is found not to be weak. It is a pulse whose characters are owing to rigidity of vessels, induced by the existing inflammatory affection; and accordingly it becomes developed under copious abstraction of blood, and the use of other appropriate sedatives. Along with these symptoms, the skin is hotter than natural; and, in at least nine cases out of ten, there is constipation. On the other hand, when the lining membrane is inflamed, diarrhœa is present in the same ratio. The constipation, in inflammation of the peritoneal coat, is probably owing to the concentration of vital action towards the inflamed membrane, which detracts from the vital activity of the mucous coat, and diminishes the secretion from it.

The chronic form of peritoneal inflammation of the intestines is not a very common disease, yet we meet with it yearly in our public hospitals, and frequently along with tubercles of the serous membranes. Like the acute form, it may be seated in any portion of the small intestines.

The symptoms that denote it are often extremely obscure.—Pain is usually felt in some part of the abdomen by pressing firmly upon it, by moving the body or, on coughing and sneezing. The patient is likewise subject to attacks of colic, and to various evidences of indigestion. Commonly, the bowels are constipated, but often the constipation alternates with diarrhœa. The general symptoms may be insignificant; at times, fever exists, but at others, it is nearly or wholly absent. When the disease has continued for some time, the intestines are apt to become glued together by the effusion of plastic lymph from the inflamed surfaces, and occasionally knotty irregularities can be felt by carefully pressing upon the relaxed abdomen. These morbid formations occasionally end in suppuration, the pus being discharged either into the bowels or the cavity of the peritoneum; and the patient dies worn out by the consequent hectic. At other times, these peritoneal tumors, by interfering with the due circulation of the blood in the abdomen, destroy the balance between the exhalents of the peritoneum and the absorbents, and dropsy of the abdomen is the consequence.

Enteritis is distinguished from *peritonitis*, by the obstruction that is produced—the constipation; and the consequent effects of it—nausea and vomiting; and also by the circumstance of the pain being fixed about the umbilicus, which is generally the seat of it; whereas, in peritonitis, it is diffused.

If the chronic inflammation be seated in the duodenum, con-

stituting "chronic duodenitis," the pain is felt three or four hours after a meal in the region of the pylorus, shooting to the back, along with the signs of indigestion that accompany chronic gastritis. For the reasons before assigned, duodenal inflammation gives rise to morbid conditions of the liver; in the first instance, perhaps, to diminution of the secretion from that viscus, but subsequently to augmentation of it. It can readily, too, be understood, that the constant irritation, kept up in the liver by chronic duodenitis, may modify its function of nutrition, so as to induce serious and permanent hepathic disease. We doubt not, that many morbid conditions of the liver are caused in this manner. The constant stimulus, from the habitual use of spirituous liquors, on the lining membrane of the stomach and duodenum, is propagated to the liver by continuous sympathy, whilst the stimulating fluid passes by imbibition into the veins of the stomach, which convey it, mixed with their blood, to the liver; and under this double influence, it must happen, that in most hard drinkers, the nutrition of the organ is sooner or later modified.

Treatment.—When called to a patient in this disease, we must ascertain the cause of it. Examine every part of the abdomen, and see whether there is not an umbilical, or a ventral hernia; for patients continually have symptoms of this description, because there is a hernia; and the hernia may be so small as to escape attention. A small portion of the intestines may slip down, without the patient knowing it. Great mistakes will occur, if persons do not remember that this disease may be the result of hernia: and that a patient may have hernia without knowing it. If there be hernia, that will be treated in the way which the surgeon thinks best.

The cure of enteritis must be on the same general plan as in all forms of disease attended with inflammation, being directed to lessen the impetus of the blood to the part affected and remove the obstruction from the intestines. Enteritis may generally be cured in its inception by one course of medicine simply. But if suffered to run for any length of time, it will certainly require very active treatment to subdue it. It will be very proper to use the vapor bath freely when the disease has been raging for some two or three days, not forgetting to cleanse the stomach and bowels. A clyster composed of bayberry, slippery elm, and golden seal, with one teaspoonful of Number Six, should be repeated until the proper evacuations are procured. Cathartics should not by any means be administered, as their tendency is to increase the irritation.

If we have an obstruction of the intestinal tube, like severe constipation or stoppage from any other cause, you will diligently seek out the cause and adapt your remedies to remove that cause whatever it may be. All delicacy must be waived and every part of the body must be examined, and in women the vagina, stricture or impact feces may be detected in the one, a uterine or other tumor pressing upon the bowel may perchance be felt through the other.

If we find nothing of this kind to exist, then we may continue our enemas well spiced with Lobelia, and persevere with this treatment till we obtain a free discharge. If the patient is not weak or very much reduced, you may be justified in giving a pretty brisk purge, such as our anti-bilious pills, or

R.—Podophillin,	grs.	3
Leptandrin,	"	6

Mix in syrup, and give, and repeat dose in four hours if it does not operate.

If we have reason to suspect intersusception, we must rely mainly on copious and large emetics of Lobelia. Purgatives must not be administered, but a free emetic must be given and our main hope must be on relaxing enemas. If the patient can retain nothing on the stomach, full injections of milk and beef tea, etc., will afford sufficient nourishment.

ENTERALGIA—COMMON COLIC.

Description and Causes.—The origin of the word colic, from κωλον, implies the belief entertained by the ancient writers of the seat of the disease. At the present time, we give a much more extended or rather diversified location to colic; but we should still be inclined so far to respect the opinion of antiquity, as to believe that colic of all kinds is, at one stage or another of its duration, marked by evolution and irregular escape of flatus, and that this chiefly comes from the colon. We know that air is extricated in the process of digestion in all parts of the alimentary canal, and that every now and then such evolution taking place in the stomach is a source of much disturbance and pain before it is expelled. But, extrication of gas, the product of secretion, we regard as one of the diagnostic symptoms of colic, most evident in the simple kind, but met with, more or less, in all; nor can we

believe it to be merely the air commonly present in the gastro-intestinal cavity, and retained by more or less weakness and distension of the muscular coat in parts of the cavity. With some writers pain and a morbid state of the nerves supplying the intestines on which it depends, are regarded as the chief characteristics of colic, and hence they designate it as enteralgia. But this is quite too restricted a view, as is that other which would make it consist in a lesion of contractility.

Colic is a disease of some portion of the gastro-intestinal canal, in which there is morbid sensibility and contractility with morbid secretion, commonly that of air; and manifested by acute pain, rolling and twisting, alternating with flatulent distention and spasmodic contractions of the bowels, and often of the abdominal muscles; with sometimes vomiting, and almost always constipation. The locomotive muscles are sometimes contracted painfully and irregularly at the same time. In simple colic, the chief but not the sole derangement is nervous, the result of morbid excitement of some part of the system by any gross irritant, viz: food in the stomach, and sometimes in the small intestine; in which last the hepatic and pancreatic secretions are now and then additional irritants: and feces and remains of ingesta unchanged in the colon. An unaccustomed stimulus will sometimes, alone, bring on colic in a healthy person, as when the disease follows the taking of unripe fruit, crude vegetables, and certain meats; but when it recurs frequently and after slight exciting causes we must suppose that a predisposition is induced, as by cold and wet feet, or obstructed perspiration, deteriorated state of the digestive organs by the use of ardent spirits, wines or mixed acescent liquors; in females, by the process of menstruation, etc.

The causes of simple colic are, generally, indigestible aliment, or acid substances passing down the intestinal tube. In children, it is a common result of the predominance of acid, and is often owing to the mother's milk disagreeing with the child. The precise pathological condition of the *colica flatulenta*, " or " flatulent colic," seems to be over-distension of some portion of the intestinal tract, which, by occasioning pressure or stretching of the nerves excites the pain. In other instances, it is spasm of the nerves, occasioned by irritating contents of the tube; in which case, it often receives the name Colica stercoralis.

Bilious colic is generally ascribed to a vitiated condition of the bile; but this is a secondary result in the generality of cases.—The disease consists essentially in great impressibility of the nerves

of the digestive tube, under which a neuropathic condition is often induced; this extends to the liver, which, under the excitement, increases the secretion of bile; and, in the same manner, an increase and a morbid condition of the different intestinal secretions are occasioned.

Diagnosis.—In some instances, where the stomach is weak and irritable, the food passes into the bowels in an imperfectly digested state; in which case, the colic pains may not come on for several hours after eating, and usually occur most severely about the umbilical region. More commonly, however, the pain commences in the stomach or duodenum, before the offending substances have had time to pass lower down in the alimentary canal.—At first the patient experiences a sense of distension and uneasiness in the pit of the stomach, or occasionally in the left iliac region. This is soon followed by a dull, peculiarly distressing, and sickening pain in these parts, accompanied with a feeling of strong distension of the stomach and bowels. The pain now rapidly increases in violence, until it becomes extremely severe. In some cases, the pains continue, with but short *remissions*, for several hours. More commonly, however, they occur in severe paroxysms, with complete, though transient intervals of ease. During the exacerbations, the patient is apt to move to and fro with the body bent forwards, and the hands firmly pressed against the abdomen. When the stomach is the principal suffering organ, large quantities of air, are, from time to time, forced up, and this is generally immediately followed by some mitigation of the pain. When the colon is the part chiefly affected, the flatus sometimes passes off downwards; but this seldom takes place to any considerable extent, until the disease is about terminating. The bowels are always torpid in this affection, and the tongue soon becomes covered with white fur.

The diagnosis of this variety of colic is not attended with any difficulty. The relief obtained from firm abdominal pressure—the agitation and writhing motions of the patient; as well as the absence of fever, and the paroxysmal character of the pains, and frequent eructations of flatus, distinguish it prominently from gastro-intestinal inflammation. From *bilious* colic it may be distinguished by the absence of bilious vomiting, as well as of the yellow appearance of the eyes, of the extreme obstinacy of the constipation, and of the headache and bitter taste in the mouth, which characterize the bilious variety of colic. From *colica pictonum* it is readily distinguished by the hardness and retraction of

the abdominal muscles, and the gradual accession of the colic produced by lead.

Flatulent colic is not attended with much danger, unless it terminates in inflammation of the gastro-intestinal membrane—a termination which sometimes, though rarely, occurs. In some instances, where the flatulent distension is very great, it produces paralysis of a portion of the bowels, or destroys to a degree, the power of contraction, giving rise to habitual costiveness, and an especial tendency to a recurrence of the complaint. It is not improbable, that paralysis of a portion of the intestinal canal, induced in this manner, may be the principal occasion, in some cases of intususception, or invagination of the bowels. Where flatulent colic is produced by very indigestible and irritating ingesta, it may give rise to rapid inflammation and gangrene.

There is another variety of colic, which, from the manifest derangement of the biliary organs, and symptoms indicative of a superabundant or vitiated secretion of bile, has with propriety been denominated *bilious colic.*

This variety of the disease appears to depend on the same remote cause which gives rise to intermitting, remitting, and other forms of miasmatic fevers; and it accordingly most commonly occurs during the autumnal months—particularly after a long continuance of a very warm and humid state of the atmosphere.

Before the more urgent and characteristic symptoms of the disease come on, the patient generally experiences headache, loss of appetite, a bitter taste in the mouth, thirst, nausea, and occasionally bilious vomiting. After these symptoms have continued for an inindefinite period of time, acute pain in the stomach and bowels supervenes, moving at first from one part of the abdomen to another, though generally most severely felt about the umbilicus. This pain is often intensely severe during the exacerbations. In the early stages of the complaint, pressure on the bowels affords some degree of relief; but as the disease advances, the abdomen becomes tender to the touch. Nausea and bilious vomiting occur more or less frequently from the commencement of the malady; and the patient always experiences a temporary abatement of his sufferings immediately after a spell of vomiting. Although the stomach is morbidly irritable, and extremely apt to be excited to vomiting, yet the bowels are almost invariably extremely torpid, being generally in a state of obstinate constipation from the beginning of the disease. The pulse seldom deviates materially from its natural condition during the early period of the com-

plaint; but in the advanced stage becomes increased in fullness, force and frequency. In violent cases, the hands and feet are sometimes quite cold during the exacerbations of the pains.—About the second or third day of the disease, the eyes and skin become more or less suffused with a yellow tinge; and in some cases, indeed, these manifestations of biliary disorder occur several days before the pain in the abdomen commences.

In cases of great severity, an nervous system usually suffers considerable disturbance—the patient becoming despondent, and affected with slight spasmodic twitches in the muscles of the extremities. Dr. Stanley, in an interesting paper on this disease observes, that he has sometimes met with cases in which much numbness and tremor of the superior extremities occurred; and he saw one case in which the "arms were so completely paralysed that all power of voluntary motion was destroyed." Paralysis of the wrists has indeed been frequently noticed as an occurrence in this affection, and this circumstance has been adduced as an argument in favor of the identity of this affection with the variety of colic produced by lead. Eructations of flatus are very common in bilious colic: and as in the former variety of the disease, they are always followed by a temporary mitigation of the abdominal pain.

That bilious colic appears to depend on the same remote cause which gives rise to autumnal bilious fever cannot be doubted. Dr. Rush includes this variety of colic among the usual forms or miasmatic fevers; and Dr. Stanley observes, that he has uniformly found "the cases of bilious colic most numerous, after a summer remarkable for the prevalence of bilious remitting and intermitting fever."

It is generally believed that the liver is morbidly active in this disease—and that a redundant secretion of bile is one of its most essential conditions. This idea is favored by the circumstance, that from the very commencement the fluid thrown from the stomach is always mixed with a considerable portion of bilious matter. There is much reason, however, to doubt the correctness of this opinion. Dr. Stanley observes, with much plausibility, that if we reflect on the quantity of bile which is secreted in a healthy individual, and the obstruction which exists to its passage downwards from the constipated state of the bowels in this disease, we can have no difficulty in accounting for the quantity of bile, in this disease; there is, in fact, generally, a deficiency of this fluid. The functions of the liver are unquestionably deranged, and the bile secreted is, without doubt, vitiated. That this is the case, may

be inferred from the analogy which bilious colic bears to *cholera*—an analogy which has particularly been noticed by many writers. Dr. Gregory observes, "that bilious colic is closely allied to bilious diarrhœa and cholera, occurring along with them, and apparently differing from them only in some unessential features." The opinion that the liver is in a state of torpor rather than of increased activity, is moreover strengthened by the fact, that so soon as the alvine discharges become bilious, an amendment of the disease usually takes place; and that however frequent the discharges may be, they seldom procure any particular relief when they are devoid of bilious matter. "When bilious stools are not brought away," says Dr. Gregory, "it is common to find chocolate motions passed, frequently in vast quantity, reducing the patient to a state of great weakness." Dr. Musgrave, in a valuable paper on this disease, states that he invariably found the liver in a highly congested state, and in the majority of instances there were strong marks of intestinal inflammation and its consequences.

The etiology of bilious colic does not appear to differ materially from that which is common to cholera, dysentery, etc. The atmospheric heat and miasmata act probably as predisposing causes; and sudden changes of atmospheric temperature, by which the cutaneous exhalents and secretory vessels of the liver are struck torpid, and the blood determined to the internal organs, constitute perhaps the principal *exciting* cause of the disease.

Treatment.—In both forms of colic above mentioned, viz: flatulent and bilious, we shall find our third preparation to be an almost infallible remedy, and this followed by an active cathartic will give immediate relief. Enemas of weak composition tea and lobelia should also in most cases be administered. As the great object is to relieve the spasm, no remedies will act more efficiently than the above. Carminatives will be found beneficial.

The aromatics, given in colic, are numerous; and, in the adult, the essential oils of vegetables are generally preferred,—sometimes dropped on sugar—as the oil of caraway, or aniseed, or peppermint, (gtt. v.—x. for a dose;) but, in children, infusions of those seeds, or of some aromatic vegetable, are more frequently chosen. Even in simple cases of griping, however, it is advisable, if carminatives be not entirely successful, to unite cathartics with them. Castor oil taken in peppermint water, or in water to which ten drops of an essential oil have been added, generally answers the purposes well; but, should it not, the dose may be repeated, or a cathartic enema be exhibited.

To infants, a similar union of cathartics and aromatics may be prescribed, the action of which may be aided by a suppository of yellow soap.

In more severe cases of colic, in which the pain is excessively severe, the object must be to remove—as soon as practicable—the constipation, by cathartics—as castor oil, or the infusion of senna with the sulphate of magnesia—and warm water, singly or the ordinary cathartic enemata may be thrown up. It is advisable in such cases, to introduce a hollow bougie into the colon; and, if flatus exist there, relief is afforded by the passage of the air through the tube; but, should this not be the case, the materials of the enemata may be thrown up through the tube.

In addition to this treatment, friction over the abdomen with the warm hand, or flannels wrung out of hot water; or caloric applied in any other way, as by heated salt, bottles filled with hot water, etc., may be used with great advantage.

In Bilious Colic a full emetic is indicated which will remove the spasmodic action of the canal, then a dose of antibilious pills, with cataplasms of bitter herbs will prevent the occurrence of the spasms and perfect the cure. When the young and inexperienced practitioner is called to a case where colic may be expected, he is first to ascertain whether it is merely symptomatic of disease of some other organ than the gastro-intestinal canal. Sometimes inflamed kidney, distended bladder, irritated or impregnated uterus, or congested liver, will give rise to colic. Second, he is to inquire, particularly, if there are vomiting and intense and continued pain, and the constipation has been of long duration, into the previous history of the patient, or whether he has had hernia; and failing to be satisfied on this head, he should make the requisite examination at the abdominal ring, and in the inguinal and umbilical regions. Thirdly, he is to learn whether any offending substance of alimentary or other nature has been swallowed for some hours preceding the attack. Fourthly, what cause, either in exposure to cold and moisture, use of alcoholic and acid drinks, menstrual period, or depressing passions, may have predisposed to an attack of the disease. Finally, he ought, by careful observation of all the symptoms and by palpation of the abdomen, to try and determine the particular part of the intestinal canal which suffers most, and in which there may be an obstruction by feces or other matter impacted in the intestine.

In stercoraceous colic the indications of cure are, to procure the evacuation of the impacted feces; and, 2, to prevent their undue

accumulation. But the means are not so simple nor so easy of operation as this announcement might seem to imply. Often we have to combat more than mere atony or enfeebled contractility of the intestinal muscles, one evidence of which, Dr. Abercrombie thinks, is an undue dilatation of some part or parts of the canal. Were this all, we need only to give purgatives, with a view to stimulate the bowels to increased contraction in order to enable them to expel their contents; but, there is not unfrequently associated with the constipation and distention from flatus, a spasmodic contraction of parts of the canal which requires other remedies. Of these the chief is lobelia. If the stomach tolerates the medicine, we may properly begin the treatment of stercoraceous colic with the administration of castor oil, given with some aromatic water; its operation to be quickened and aided by common purgative enemata, such as infusion of salts and senna, or castor oil mixed with gruel and molasses. Melted lard, in the quantity of half a pint, administered by the mouth, and repeated after an interval of four or five hours, has been found to succeed after the failure of even tobacco injections. Much flatus and distention being present, assafœtida mixture, or, in less quantity, the tincture, will be added advantageously to the purgative enema. An active combination for this purpose is castor oil, two ounces; oil of turpentine two ounces and a half; gruel or flaxseed mucilage, one pint; tincture of assafœtida, two drachms, or mixture of this medicine one ounce and a half. Sometimes, after the rectum is evacuated, we are unsuccessful in procuring the farther discharge of feces, owing to a spasmodic stricture at the lower part of the colon, or at its sigmoid flexure, by which the passage downwards of wind and feces, and upwards from the rectum of enemata, are alike prevented. In such a case, it will be necessary to have recourse to the introduction of an elastic tube beyond the constricted part of the colon, in order to allow of the escape of pent-up gas as well as of the introduction of enemata from a syringe attached to the tube. A measure of this kind is still more called for if the obstruction and colic be caused by strangulated intestine, as in hernia. In extreme cases, recourse will be had to tobacco enemata, or to the Lobelia as preferable.

COLICA PICTONUM—PAINTER'S COLIC.

Description and Causes.—Lead, in whatever way and form it may be brought to act on the system, is almost the only well ascertained cause of this variety of colic. It would seem that

the fumes of melted lead, and the white oxyde of this metal, are most apt to act injuriously on the animal system, and to give rise to this extremely distressing affection. It has been said, that the acetate of lead is incapable of producing this disease, and that no apprehensions need be entertained on this account in prescribing the internal use of this article. It must be admitted, indeed, that the acetate manifests a much less deleterious tendency in this way, than any of the other forms under which this metal may exert its poisonous influence on the system. It would appear that the tendency of lead to produce colic is not confined to the human species. It has been distinctly noticed, that in the neighborhood of smelting furnaces and white lead manufactories, pigs, poultry, and other animals, occasionally become affected with a similar disease. Plumbers, painters, glaziers, gilders, the workers in lead mines, and in white lead manufactories, are most exposed to the influence of this poison, and of course almost peculiarly liable to this disease. Formerly, it was the practice, in some parts of Europe, to put *litharge* into new made wine, for the purpose of rendering it palatable, or to convert acid into sweet wine. This gave rise to the extensive prevalence of this form of colic in some districts; and it is from its endemic prevalence at *Poitou* in France, from this cause, that the disease obtained the name of *colica pictonum*.

It has been contended, nevertheless, that other causes are capable of producing this variety of colic. Crude wine, fresh cider, and other drinks, acidulated with fresh vegetable juices, are mentioned as possessing a tendency, under otherwise favorable circumstances, to produce this disease; but the correctness of this opinion has, I think, with great propriety been doubted; for if the circumstances attending the occurrence of instances of this kind are accurately investigated, it will, perhaps generally, be found, that in such cases these drinks had been tainted with lead employed in some part of the machinery or vessels made use of.—Without doubt, such beverages may give rise to severe colic; but we have no satisfactory evidence that they are capable of producing the protracted train of distressing symptoms which are known to arise from the poisonous influence of lead. Larrey, and some other late writers assert, that atmospheric vicissitudes, in conjunction with malaria, are a frequent source of this form of colic; but it is probable, when produced by these causes, the disease does not differ from the preceding variety—namely, *bilious colic*. It has indeed been maintained, that the affections called bilious and

lead colic are essentially the same; but, although the former often bears a very close resemblance in its course and phenomena to the latter, the more decided manifestations of biliary derangement in the former, and the great aptitude of the latter to pass into a chronic state and to become complicated with various affections of a most distressing character, among other distinctive circumstances, seem to indicate a radical distinction between them. Of the nature or proximate cause of colica pictonum, there is but little known of a satisfactory character. That the nervous system is prominently affected, is very evident; but whether the ganglionic, or the cerebral nerves, are the seat of the primary irritation, is by no means evident.

It would seem, that the deleterious effects of lead are chiefly produced by the carbonate. The acetate rarely gives rise to the lead colic, and when it does, it is presumed to have become converted into the carbonate. To avoid this conversion, it has been advised to add a little acetic acid, in all cases in which the acetate is given.

It has been an interesting question, as to the mode in which the lead enters the economy. Unquestionably, lead colic is occasionally induced by particles of the metal getting upon the fingers, and being swallowed, where due cleanliness has not been adopted. That this is the mode in which it is at times received into the system, is, indeed, sufficiently shown by the fact, that at an extensive smelting establishment, in Cornwall, England, at which cases of lead colic were extremely common, the disease was almost abolished, after an order had been issued, and strictly enforced, that no workman should be permitted to partake of food until he had washed his hands carefully, and had the assistance of a nail brush.

Still, the disease occurs, notwithstanding every precaution; and there is great reason to believe, that the channel by which the lead is most commonly received into the system, is the air passages. It has been affirmed, that it is necessary for the metallic particles to be dispersed in the atmosphere, either alone, or by the agency of some volatile vehicle, in order that colic should be induced, but there is no doubt, that it may be produced through the medium of the digestive tube, and even indemically, by simple contact of the lead with abraded surfaces. Lead colic has been induced by the litharge and sugar of lead added to wines and cider, by the use of water kept in leaden cisterns, and by the impregnations of lead communicated to beer, soda water, etc.,

when suffered to remain in leaden pipes. It would seem, however, that certain individuals are more liable to lead diseases than others; and that so great a diversity exists in this respect as to render it impracticable to determine the quantity of lead which the economy can bear in the way of medicine. Daily experience exhibits, that the acetate may be given in large quantities, without the supervention of unpleasant symptoms.

Diagnosis.—This variety of colic has been described under a diversity of names—as dry gripes; Devonshire colic; colica pictavensis; colica saturnina; colica damnoniensis; rachialgia metallica; painter's colic, etc. It generally makes its approaches in a very gradual manner—commencing with symptoms of gastric derangement, such as irregular and weak appetite, foul eructions, languor, slight nausea, constipation, with transient pains, and a feeling of weight and tightness in the abdomen, more or less drowsiness, and disinclination to mental and corporeal exercise. By degrees, the pain in the epigastrium and umbilical region becomes more and more severe and constant. The abdomen is hard, retracted, and somewhat tender to pressure, the bowels immoveably torpid, and the stomach, in most instances very irritable. The pain in the abdomen suffers occasional remissions, but, except for a moment after vomiting, and in mild cases, no perfect intermissions take place, as in the other varieties of colic. The exacerbations of the colic pains are protracted in duration, and exceedingly agonizing; and during the first two or three days, the retching and vomiting are generally very distressing, although a momentary mitigation is usually experienced, immediately after the contents of the stomach are ejected. In violent and rapid cases, or what may be called the acute form of the disease, the pains extend from the umbilical region upwards to the chest and arms, and downwards to the pelvic viscera, giving rise to paroxysms of violent pain in the region of the bladder and rectum, with much difficulty of voiding urine, and a distressing sense of weight, constriction and bearing down in the lower part of the abdomen. During the exacerbation, the anxiety and agitation are extreme—cold sweats break on the extremities and face; the countenance is pale, contracted, and expressive of great suffering; and in some cases of very great violence, partial syncope, delirium, convulsions, paralysis of the wrists, and severe pains in the extremities occur. When remedial measures fail to make a favorable impression on the disease, the vital energies at last begin to sink; the abdominal pains abate; the stomach becomes extremely tender and puf-

fy; the thi rst unquenchable; vision imperfect; and finally, œdema of the feet, drowsiness, a pale, livid hue of the face, and occasionally, suppression of urine, and more or less tenesmus, with great difficulty of breathing ensues; and the patient dies under symptoms of apoplexy, or in a state of syncoptic insensibility.

Colica pictonum, if not subdued by an appropriate treatment, or if the remote cause continues to act on the system, or the patient has already suffered one or two attacks of the disease, is particularly apt to assume a chronic character, and to become associated with a variety of fixed and peculiarly distressing affections. The excretory and nutritive functions become impaired; the mental and physical energies torpid; the capillary circulation extremely inactive, giving rise to a pale, sallow, and leaden hue, and a shriveled, dry, and harsh state of the surface of the body; the temper becomes irritable, desponding, taciturn and gloomy; the countenance lurid, and expressive of deep suffering; the body emaciates; *the fore-arms become wasted and palsied;* the abdomen exceedingly hard, painful to pressure, and tumid; the legs œdematous, with pain in the joints, particularly in the ankles and great tenderness of the soles of the feet. The patient is extremely restless at night, his vision becomes weaker and weaker, the œdema extends up the legs, and the abdomen enlarges with dropsical accumulations. In some cases, paraplegia, epilepsy, mania, or total imbecility of mind ensues; and the patient is at last reduced to a state of complete exhaustion and emaciation, and dies under symptoms of apoplexy, or of dropsical effusion into the cavity of the thorax, pericardium, etc.

Before the symptoms of painter's colic present themselves, there are evidences of the effects of lead upon the system, to which a recent writer has given the name *intoxication saturnine primitive.* The principal marks of this condition of the system, are said to be—a peculiar bluish or bluish gray tinge of the gums, which sometimes extends over the mucous membrane of the mouth generally, and which has been regarded as an infallible proof of the presence of lead oxide in the system. The teeth, at the same time, become discoloured, and affected with caries; there is a sweetish, styptic, astringent taste in the mouth, with a peculiar fœtor of the breath; sallowness of the skin, and dull, yellow tinge of the conjunctiva; general emaciation; small, soft, compressible pulse, and, in rare cases, a considerable reduction in the number of its beats. Of these symptoms, the discoloration of the gums and teeth is the most frequent and most characteristic; and it is considered to be owing so the deposition of a very minute film of

sulphuret of lead on the mucous surface, and on the enamel of the teeth.

The importance of attending to these premonitions is exhibited by the fact, that of 1217 cases of lead colic, which fell under the care of one individual, 1195 were previously affected with one or more of the symptoms above mentioned; and, in many instances, by attending to these premonitions, with temporary cessation from work, the threatened attack of lead colic was prevented.

The pain of the abdomen, which, when the disease is fully formed, is so excruciating as to cause the strongest individuals to writhe about, and to weep like children, sometimes comes on suddenly; but, most commonly, it is immediately preceded by signs of gastric and abdominal derangement, and by scantiness and infrequency of the alvine evacuations. When the disease is fully formed, the pain is agonizing, and exhibits remissions and exacerbations. As in other cases of colic, it may be relieved by pressure, but this is not always the case; and at times it is aggravated by it. The abdomen may exhibit various characters. It may be natural, or fuller than natural, but more frequently it is retracted, and feels hard. The pain, in certain cases, shoots through to the back, so as to give rise to the symptom which has given it the name *rachialgia*, with some. The bowels are almost invariably constipated; such was the case in 1140 out of 1217 instances, and, when evacuations are procured, they are generally scybalous, and often similar to those of sheep. With these symptoms, there may be conjoined nausea and vomiting—at times, of a bilious character.

The pains are not, however, limited to the abdomen; very severe suffering is frequently experienced in the limbs, especially in the upper; followed by debility of the extensor muscles, which may lose all power, become paralytic, shrink, and almost disappear. Occasionally, the organs of sense, as the touch, sight, and hearing, participate in the loss of power.

In the midst of all his sufferings, the patient's pulse is slow, and the skin natural; but there is a striking alteration in the expression of the countenance, which indicates extreme anxiety, and the most intense suffering. The eyes are deeply sunken in the orbits, or sometimes thrust prominently forward from their cavities; they are surrounded by a bluish circle, are muddy and wild, and, with the other parts of the face in constant motion, vividly expressive of the different degrees of pain experienced by the patient. The nose is somewhat pinched, and the cheeks become hollow.

Treatment.—The treatment of the different forms of colic cannot essentially vary. The indications that govern our prescriptions, are, to allay the pain and spasm of the bowels; to evacuate the intestinal canal; to correct and excite a healthy action upon the liver and intestinal secretions, and to guard against the approach of inflammation in the stomach and bowels. These points can be accomplished with certainty and safety by the timely and proper administration of the regular courses of medicine. The bath should be prolonged to half or three quarters of an hour. Enemas composed by the following formula should be repeated every half hour, until the urgent symptoms are abated by a relaxation of the system and vomiting. Tea-spoonful pulverized seeds of Lobelia, slippery elm, and composition, each half teaspoonful, tepid water a suitable quantity. The injection should be retained by the patient as long as possible. If the disease has been induced by an exposure to the poisonous effects of lead, either recommended by the mineralists, as medicine, or by working in the mines or manufactories, several months of regular coursing with intermediate tonics may be necessary to cleanse, purify and strengthen the system. Who can read the foregoing description of the painter's colic (which is taken from Eberle's Practice,) without deprecating the use of such an article for medicine; What, give lead to cure a sick man of *whatever* disease, whose slow and insidious progress we have seen, produces such a train of ills, which in the majority of instances, in the hands of the Allopaths are so fatal!

In the Old School practice we are told that Alum is one of the most approved, in fact is the most entitled to our confidence of any one single remedy, in their treatment of lead colic. In its favor we have the experience of practitioners in Germany, France and Great Britain. Its administration long constituted the treatment of lead colic by M. Kapeler, at the Hospital Saint Antoine in Paris. M. Montanceix assures us, that in doses of three or four drachms daily, the potassio-sulphate of alum cures, invariably, lead colic, however violent it may be, in less than six to seven days, and commonly also without relapse occurring. M. Gendrin tells us, that fifty-eight patients attacked with the disease, some of whom had been subjected unsuccessfully to other modes of treatment, were cured with a single exception and without any inconvenience to the digestive organs. In a dose of a drachm and a-half to two drachms, the alum arrested the march of the disease in twenty-four cases, in a period of from ten to fifteen hours; and in six, the per-

were not obliged to suspend their work. But, he adds, that

when the dose exceeds two-and-a-half drachms in twenty-four hours, disagreeable effects ensue.

We feel quite assured however, that the same relief will result from the administration of our vegetable astringents, especially the Myrica, (Bayberry) and the Geranium, (Cranesbill.)

In most cases of lead colic, the same treatment will be judicious as we have recommended for that produced from other causes.

You may be consulted about the *palsy* which arises from lead, and especially to remedy the dropped wrists, which render the patient incapable of earning his livelihood. Now in the early stages of the palsy, and in its primary attacks, you may often succeed in effecting a cure. Electricity has long been thought useful, applied in the way of sparks at first, and slight shocks afterwards, along the muscular parts of the extensors of the fingers. It accelerates the recovery to give the hand and fingers the mechanical support of a splint, made for that express purpose, and so contrived that the hand and fingers are kept extended through the greater part of the day.

Dr. Comfort advises the following :—

A strong decoction of the compound of bayberry and sumac berries, does better than the tea of the bayberry alone. I succeeded in curing a case of the disease that had become chronic, the patient having been several years employed in Mr. Wetherill's white lead manufactory, where he was daily exposed to the deleterious fumes of this noxious mineral. In this case I found astringents peculiarly beneficial, and administered three or four times a day, with the addition of a small portion of capsicum.

The patient also used injections of the same, and occasionally had a vapor bath and an emetic. Large quantities of a thick membranous substance were passed from his bowels by the injections.

It must be borne in mind that painter's colic is not to be cured, in general, short of several days, and in some instances not under two or three weeks. The grand object always to be kept in view in the treatment, is to assist the efforts of nature to work off from the system the poison and its effects, by such means as have been mentioned, and persevere in their use, varying them to suit the nature of the case.

During the convalescence the patient should take tonics, and once or twice a day, a teacup half or two-thirds full of a decoction

of the bayberry or sumac berries, with from half to a teaspoonful of cayenne added, and avoid exposure to the fumes of lead.

Dr. Atkins recommends the following application in the treatment of this disease :—

It is the frequently repeated application of dry hot salt, which is folded up in a towel or napkin. This is always to be had, it is soon heated, and has this great advantage over hot fomentations, that it does not leave the patient wet and cold after his pain is relieved. By keeping two napkins in use, the salt for the one may be heated while the other is applied, and thus a constant succession kept up. In all cases of colic the heat gives relief almost from the first application, and is by far preferrable to any mode of applying heat, whether dry or wet, that I have ever made use of.

DIARRHŒA—FLUX—BOWEL COMPLAINT.

Description and Causes.—By "diarrhœa" (from διαῤῥεω, *to flow through*,) is meant frequent liquid, and rather copious feculent stools—not dependent upon debility of the sphincter ani. In dysentery the stools are not feculent. When a person is weak in the sphincter ani, he may have stools every ten minutes; but he would not, on that account, labor under diarrhœa. In this disease there is pain only at the time of the evacuation. It is pinching enough, and pretty sharp then; but it ceases as soon as the evacuation is effected; whereas, in dysentery, the griping is horrid; and is not lessened by the discharge of mucus and blood which characterizes the disease. Cullen, in his definition, says there is no preliminary fever; and that the disease is not contagious; but there may be preliminary fever in diarrhœa, inasmuch as it is frequently inflammatory.

The discharge, in this disease, is of all colors—white, green, black, yellow and clay-colored; and of various colors at various times. It is also of all kinds of disagreeable odors—sour, fetid, and every other variety of unpleasant smell. It may likewise be bloody, watery, mucous, or purulent. Occasionally, the motions can hardly be called *liquid;*—they are only very *soft.* Sometimes they are uniform in their tenacity or softness; and sometimes they differ in different portions. It appears that the discharge is chiefly an increased secretion of the intestines, and sometimes of the liver. Sometimes the nature of the discharge is de-

pendent upon some other organ. The discharge may be purulent —from an abscess in the liver, or perhaps an abscess in the ovaria. There are all degrees of the disease, and all durations of it.

The *causes* of the disease are, in the first place, too much food. If a person eats a great deal, it must find its way out; and it does. There must be more *exportation*; so that diarrhœa is very frequently an effort of nature; and the person would be badly off if he had not diarrhœa. An alderman, we should think, would suffer severely, if he had not many attacks of diarrhœa, in the course of a season. Improper articles of food will give rise to diarrhœa. Every body knows, that if he take something which disagrees with him, he will suffer from it—nature makes a proper effort to get rid of it. Frequently *new* articles will occasion diarrhœa. If a person eat something to which he is not accustomed, although it may be excellent in its kind, it will frequently give rise to the disease. Children suffer exceedingly, if they are weaned too early, or too suddenly. There is a peculiar kind of diarrhœa in infants, called "weaning-thrush." If children be weaned before nature is ready for the change, or if the change be made too rapidly, diarrhœa takes place. Children cannot bear the sudden change from milk to common food; whereas, if they be strong, and be weaned gradually, they bear the alteration of diet very well. This is precisely analogous to what is observed with regard to fish.—There are *salt*-water and *fresh*-water molluscæ; and if we put the *salt* water molluscæ into *fresh*-water, and *vice versa*, they will die; but if we mix the water gradually, so as to lessen the saline quality of the water by degrees, they will live in it as well as if they had been always accustomed to it; and the same in regard to the *fresh*-water molluscæ living in *salt*-water. A new article of food is a common cause of diarrhœa, both in children and adults; especially in the former.

Cold, especially after heat, is another common cause of this complaint. The mind, too, has a very great effect. Fear is generally considered to operate very strongly on the intestines. Malaria is enumerated among the causes of this disease. The suppression of other discharges will sometimes produce it. If a person have been accustomed to a running of the leg, and it is suddenly stopped, he may think himself well off if he have diarrhœa; because, if he had not, he might have apoplexy. Metastases are causes of it. If another disease cease, it is common to see diarrhœa begin. If inflammation suddenly cease, diarrhœa may occur. Dysentery is mentioned as one cause of it. This is an

affection which is very commonly produced by other diseases; or it becomes a part or consequence of other diseases. In fever, for instance, diarrhœa is very common—it becomes a part of the fever. It is very common after measels. Measles affect the intestines almost as much as the skin; at any rate, they affect them in a remarkable degree. So, again, in phthisis—the same state of the body that gives rise to that affection, causes at least a great irritation of the alimentary canal.

Causes of the Paroxysms.—Besides the exciting causes of the disease itself there are exciting causes of paroxysms—if we may so call them. For instance: when a person is laboring under diarrhœa, if he move about much, he will very likely be obliged to go to stool; and again, on taking food, many persons immediately have a desire for a motion. Sometimes it is *warm* food, and sometimes it is *cold*, which has this effect. Frequently persons can take nothing warm without having a desire to go to stool; and the application of cold to the surface, will bring on the desire in a moment. The best plan is to sit quietly by the fire without moving.

Time of life certainly offers a predisposition to diseases of the lining membrane of the digestive tube. Infancy is extremely liable to the more acute forms of diarrhoea, and old age to the more chronic. Sex, too, appears to act in the same manner, women being more liable to constipation, and this probably owing to their sedentary occupations. Climate and season act, likewise, in the way of predisposition, bowel affections being much more frequent in the torrid regions than in the temperate or frigid; in like manner, diarrhœa is so common during the heat of Summer, as to be called, in this country, "Summer complaint,"—a term, however, which is often made to include dysentery and cholera infantum.

Diarrhœa, after having existed for some days in the acute form, because chronic, and an increased discharge from the mucous membrane continues, similar to the gleet, that succeeds to the inflammation of mucous membranes in general. At other times the symptoms are, from the first, those of chronic diarrhoea, if we may be permitted to term a disease chronic, in which time is no element. In such cases, great impressibility of the digestive tube exists, so that an effort of diet reproduces the disease after it appears to have yielded.

As in chronic dysentery, the patient frequently becomes greatly emaciated, and the supervention of positive endoenteritis and consequent ulceration have to be apprehended. It is often,

indeed, a matter of extreme difficulty to decide, whether the disease consists in mere irritation of the lining membrane of the tube or in inflammation or ulceration, or both.

Diarrhœa appears also sometimes to arise from an epidemic condition of the atmosphere, independent of thermometrical or hygrometrical states. This variety of the disease usually occurs in the autumn, when the nights begin to get cool, after a very dry and hot summer, and generally during a prevalence of other forms of intestinal diseases—particularly dysentery and cholera. Cases that proceed from causes of this kind are commonly preceded by the same train of premonitory symptoms that usher in miasmatic fevers—such as a feeling of weight and anxiety in the precordia, loss of appetite, bitter taste, tension and fulness of the abdomen, disturbed sleep, headache, some lassitude and aching pain in the back, and slight sensations of creeping chilliness. Diarrhœa arising from this cause frequently pass into a dysenteric form of the disease. It is probable that these cases depend on the conjoined influence of koino-miasmata and atmospheric vicissitudes—giving rise to increased irritability, functional disorder, and sanguineous engorgement of the liver and intestinal canal, in a way which will be more particularly referred to under the head of cholera. Besides these, there are many other general causes capable of producing violent and protracted diarrhœa. The repercussion of acute and chronic cutaneous eruptions sometimes gives rise to obstinate attacks of this disease. It may also be produced by violent affections of the mind, particularly sudden terror and grief. Diarrhœa occurs very frequently in visceral and other local affections attended with suppuration and ulcerative disorganization.—Thus in the latter period of pulmonary consumption, colliquative diarrhœa almost invariably occurs ; and the same may indeed be said of every variety of disease attended with hectic fever, or extensive suppurations.

In febrile diseases, diarrhœa sometimes occurs as a critical evacuation. It can never be regarded as salutary, however, where it depends on the supervention of phlogosis, or high vascular irritation of the mucous membrane of the bowels. When the discharge is watery, reddish, or muddy, mixed with floculi of mucus, and the abdomen is tender and the tongue dry and red along the edges, it always indicates an aggravated condition of the disease, and the existence of mucous inflammation, and is of course a highly unfavorable occurrence. Critical diarrhœa appears generally to depend on a copious secretion of bile, or an increased

discharge from the intestinal exhalents, co-operating, probably, with a morbid irritability of the bowels; and hence, salutary discharges of this kind are almost invariably bilious, mixed with more or less feculent matter and intestinal mucus. Watery discharges, free from bile, are rarely if ever indicative of a favorable tendency of the disease. During dentition, children are very liable to diarrhœa; but as this discharge, when moderate and unaccompanied with much gastro-enteric irritation, is calculated to lessen the tendency to preternatural determinations to the brain, it should not be checked in instances of this kind, unless it becomes excessive and very exhausting.

When the diarrhœal discharge has been brought on by indigestible or irritating articles of food or drink, and consists principally of feculent matter and vitiated secretions, it may in general be readily checked, and unless greatly mismanaged, will rarely assume a dangerous character. In general, diarrhœa is most apt to assume a chronic and dangerous character when it arises from the influence of cold and damp air, or from the habitual use of unwholesome and indigestible diet, in individuals laboring under some chronic visceral affection, or whose general health has been much impaired by previous diseases, hardships, or a course of intemperate living. When we find the disease to continue long, with frequent, watery, and acrid discharges attended with tenderness in the abdomen to firm pressure, and extremely severe tormina, we may presume that there exists chronic inflammation, or at least high irritation in the mucuous membrane of some portion of the bowels—and consequently that there is much danger of the occurrence of structural disorder in this tissue, if the disease be not soon removed by appropriate measures. Those cases of diarrhœa that assume a strictly chronic character, and in which scanty and painful diarrhœal evacuation of an unnatural appearance occasionally alternate with short periods of constipation, and severe pains are experienced in the track of the colon an hour or two after eating, may be regarded as certainly dependent on mucous inflammation, and most probably attended with more or less ulceration, and consequently with great danger and difficulty in effecting a cure.

Diarrhœa from the irritation of dentition, as has just been remarked, is rather a salutary than a dangerous affection; but when this *symptom* of enteric disease is accompanied with a pale and fretful expression of the countenance, a hard and tumid abdomen, frequent picking at the nose, voracious appetite, and the discharge

of undigested portions of food in the stools, it must be considered as an affection of a more serious import.

Diagnosis.—Diarrhœa cannot be mistaken. The number of alvine evacuations is greater than natural, and they are of a more fluid consistence. Their character may vary considerably; sometimes exhibiting a predominance of acid, especially in children; in others, of the bile, and in others, again, of both. Let the remark previously made, be borne in mind, however, that when muriatic acid is mixed with healthy bile, a green color is induced; and hence, the therapeutist may have to correct the too great secretion of acid, rather than the vitiated secretion of bile.

When the evacuations have the appearance of containing much bile, the irritation that gives rise to the diarrhœa is generally seated at or near the portion of the tube into which the ductus communis choledochus opens; and if it should continue for any length of time, the secretion from the liver may be permanently deranged. It is now admitted, that the most certain mode of rendering evacuations bilious is to administer cathartics which act upon the upper part of the small intestines, and which, by their excitation, conveyed by continuous sympathy to the liver, induce an increased and a modified secretion from that viscus. Hence, the common course of treatment, at one time so much advised in dyspepsia, was well calculated to produce a vitiated condition of the very secretions which it was prescribed to remove.

In simple diarrhœa, mucus may be mixed in considerable quantities with the evacuations, but pain and tenesmus are rarely concomitants; nor are there usually any symptoms present, which indicate that the irritation extends to the general system. In those cases of diarrhœa that arise from the surfeit—the *Diarrhœa stercoraria*, *D. Crapulosa;* vomiting is at times an attendant: in such cases, however, the disease is more properly cholera morbus. In some cases, too, more or less febrile irritation prevails, constituting the acute form of enterorrhœa.

The duration of an ordinary acute attack of diarrhœa is but a few days; generally, perhaps, but a day or two; and the usual termination is in health; it may, however, end in endoenteritis; and, at times, it passes into the chronic form.

Acute diarrhœa is very common in childhood. Infants, indeed, rarely escape attacks of bowel complaints, in which the evacuations are of a green color and acid smell. The number of evacuations may be very great—from twelve to twenty a day—yet the disease may pass off, without materially affecting the general con-

dition of the child. In this case, the stools may be at first feculent; but they soon cease to be so, and nothing but a greenish fluid may be apparent upon the diaper. In other cases, and in somewhat older children, the secretion of mucus is inordinately increased, and after the discharge of feculent stools for a day or two, scarcely anything but mucus may be passed, which, if it be discharged into a vessel containing water, will be observed at the bottom. In this case, there is usually inflammation of the lining membrane of the tube. In the same pathological condition, frothy evacuations are not uncommon attendants; but no positive deduction can be made from the evacuations alone. In the diagnosis, all the other accompanying symptoms must be attended to. When there is great irritation, the stools are either squirted out forcibly, or they pass away in small quantity with much straining.

One of the most dangerous varieties of diarrhœa is that, to which, in England, the term "watery gripes" has been commonly given. By some, it has been considered to be synonymous with lientery; but it is not so; for although the food or drink rapidly passes through the bowels, it generally appears to have undergone some change; and often resembles moss-water. From the commencement of this form of diarrhœa, the secretion from the mucous membrane is excessive, and consists chiefly of the watery exhalation, although at times this is mixed with an increased quantity of mucus; the evacuations are accordingly very watery and frequent; the child is extremely restless; the skin dry; the features soon become pinched; the emaciation and prostration are excessive, and if the disease be not speedily arrested, it soon terminates fatally.

In chronic diarrhœa there exists a morbid excitability of the intestinal canal, so that almost everything taken into the stomach, as food or drink, brings on quickly repeated discharges by stool consisting of the ordinary secretions of the digestive tube, more or less changed in character, mixed with portions of half digested aliment; and the looseness continues, often unattended with griping, or any other uneasy sensation save those connected with the debility and emaciation produced by the interruption to the digestive and nutritive functions generally, which the rapid passage of the aliment through the bowels occasions. There is no doubt, that frequently the morbid excitability of the digestive canal is due to a chronic inflammation, often follicular, and attended with ulceration of some portion of its mucous membrane; when this is the

case, we have repeated discharges by stool without apparently any exciting cause other than the morbid secretions of the liver, pancreas, or of the stomach and intestines themselves. The discharges are, in general, dark-colored and offensive, very fluid, and small in quantity, and are often preceded and accompanied by griping pains more or less severe. There is, very commonly, some degree of nausea, and occasionally vomiting, the appetite for food is generally destroyed, though in many cases it continues unimpaired. The patient becomes more and more emaciated and debilitated; his skin assumes a dirty sallow hue and dry harsh feel; the palms of the hands become hot and dry; the countenance has, in many cases, a dull, desponding expression; the features acquire considerable sharpness, and the eyes become sunken and surrounded by a broad leaden-colored ring. The abdomen is frequently flaccid, and exhibits no tenderness upon moderate pressure; occasionally, however, it becomes swollen and tympanitic, and is now and then decidedly tender to the touch. Febrile symptoms are not generally present; in many cases, however, there is observed some degree of febrile excitement towards evening—very protracted cases we have repeatedly known to be accompanied with well-marked hectic symptoms—more or less puffiness of the face, and œdematous swelling of the extremities, very commonly occur in the course of the disease. The discharges by stool, while they are always fluid and vitiated, exhibit considerable variety in their appearance; most generally they are dark-colored, and exhale a rancid or fetid odour; occasionally, however, they have a jelly-like consistence, and very little smell; at other times they consist of a small quantity of a dirty yellow fluid, and when they contain solid matter this will generally be found to consist of portions of half-digested aliment. All these changes in the character of discharges may present themselves in the same case, and often within a very short period. In protracted cases, the discharges would appear to acquire an acid property, producing an erythematous inflammation of the verge of the anus, and often of the nates. The frequency of the stools varies very much in different cases, and at different periods in the same case. Occasionally diarrhœa takes place only after the ingestion of food or drinks, or of particular kinds of food, and the discharges from the bowels continue to recur at short intervals until the offending matters are got rid of; in many cases, repeated stools occur in the course of the day, whether food is taken or not, and are suspended during the night; in other instances the eva-

cuations from the bowels often cease for a day, or even longer, and then return, and for a short period with increased frequency.

The duration of chronic diarrhœa is very various; unless arrested by a proper course of treatment—its spontaneous cessation being a thing of very rare occurrence—it will run on for weeks, often for months and the patient finally sinks from extreme exhaustion. Occasionally perforation of the intestines occurs from ulceration or softening, and the fatal event is preceded by peritonitis.

The state of the intestinal tube in those who have fallen victims to the disease is very various. In some cases, the mucous coat, particularly of the large intestines, is somewhat thickened, spongy, and pale—in others its anatomical characters are entirely changed, large portions of it presenting a smooth, glassy, mottled appearance, as though its surface had been covered with a thin coating of dirty varnish. Occasionally large patches of the mucous membrane of the colon or rectum are of a dark mahogany or of a slate color—the traces of follicular inflammation, or of ulcerations, more or less extensive, are not unfrequently met with, especially in the ileum and colon. Dr. Stokes notices a form of chronic diarrhœa as of common occurrence, dependent upon ulcers situated close to the verge of the anus; these ulcers occur chiefly in persons of a broken down constitution, and those who have taken a great deal of mercury; we have repeatedly observed them, also, in individuals, who have been in the habit of using almost daily the various pills composed chiefly of aloes, soap and scammony, or gamboge, vast quantities of which are vended in the United States as a popular remedy for almost every ailment. The ulcers situated just within the anus produce irritation in the colon, tenesmus, griping, frequent discharges by stool, and most commonly during the straining a little blood is passed. The presence of the ulcers may be at once detected by examination of the rectum; which examination, as Dr. Stokes very correctly remarks, should invariably be made in all cases where the diarrhœa has been of long standing, and has resisted a great variety of treatment; where it is attended with tenesmus, and a desire of sitting on the night chair after a stool has been passed; and, finally, where the patients health does not appear to be so much affected as it naturally would be from long-continued disease of a large portion of the great intestine.

Treatment.—In the treatment of diarrhœa it should always be recollected that the characteristic alvine discharges, by which this affection is recognized, and from which its name has been derived

is a mere symptom of a primary intestinal disorder, and that our remedies must be especially directed against this, the essential malady.

The principal aims in this form of intestinal disease, therefore, are, 1. To remove as much as possible every source of intestinal irritation; 2. To allay the morbid irritability of the mucous membrane of the bowels; and 3. To diminish the determination of the blood to the vessels of the intestinal canal.

In recent cases where there is reason to presume that the intestinal irritation is kept up by vitiated secretions, or other irritating matters lodged in the bowels, recourse must be had to mild purgatives. This is especially necessary where diarrhœa is the consequence of indigestion, or of the reception into the stomach of indigestible and irritating articles of food; or where the bowels are loaded with fecal matter, as occurs in the marasmus of children. It must be observed, however, that it is only in the earlier periods of diarrhœa, or where the mucous irritation has not passed into the state of *inflammation*, that any material advantage may in general be obtained from purgatives. Purgatives are indeed, very often greatly abused in affections of this kind. Nothing is more common than the repeated use of active purgatives in diarrhœa. An individual becomes affected with looseness of the bowels. If it does not soon cease spontaneously, he takes a purge.—The bowel complaint, however, continues, and convinces him that there is still something left which must be removed. To make himself sure of his objects, he takes a more active dose; but the tormina and discharges instead of being mitigated, acquire greater violence. Astonished at the obstinacy with which the offending matter sticks to the bowels, he determines, once and for all, to get rid of the cause of his complaint, and swallows a double dose of the most active cathartic. He now begins to experience tenderness in the abdomen: the tormina and diarrhœa discharges continue; in short, he has developed inflammation, which the most judicious management may alone be capable of removing.

In taking a careful view of this subject, we are rather inclined to prefer injections to any, or particularly to a *free* use of cathartics. If any *are* given, the mildest laxatives alone should be employed.

In all bowel affections attended with inordinate discharges, preternatural determination of blood takes place to the vessels of the intestines, with more or less torpor of the cutaneous exhalents.—This is more especially the case in instances of long standing, and contributes very materially to the support of the intestinal irrita-

tion. Remedies which are calculated to counteract this centripetal direction of the humors, are therefore especially proper in affections of this kind.

No remedy possesses such essential importance to accomplish this purpose, or no combined operations so appropriate as the vapor bath and the lobelia emetics. A greater change is put on by its administration, in twenty-four hours, than could possibly be wrought by any other course in quadruple that time. In cases of diarrhœa, characterized by a chronic inflammation of the intestines, the adoption of this treatment cannot be too strongly urged by the practitioner in the outset. This practice equalizes circulation, by restoring a healthy action to the capillary vessels upon the surface, excites activity in the cutaneous exhalents, and thereby takes off that determination and pressure upon the bowels. And, further, a lobelia emetic will not fail to procure a favorable change in the secretions of the liver, which may be suffering any temporary embarrassment. Injections should also be frequently repeated. Composition may be used alone, or combined with nerve powder and slippery elm.

A preparation compounded after the following formula, has long been given with great effect in dysenteric affections: Poplar bark, four ounces; bayberry and high brier root, each six ounces; cranesbill and hemlock, gum myrrh, pulverized, and fennel seed, each two ounces; peach meats, four ounces; caraway seed and cinnamon, pulverized, one ounce. The whole should be put to six quarts of water, and steeped five or six hours—then to be strained and reduced to four quarts. Then add five pounds of loaf-sugar, and three pints French brandy.

A table-spoonful would probably be a suitable dose for an adult, repeated according to circumstances; or if this preparation is not at hand, the bayberry, cranesbill (better known at the south by the name of alum root,) and the high brier root, (that which grows so plentifully by every way side and hedge, and yields such a delicious black berry,) may be either prepared combined or separate and given to great advantage in this affection.

Some practitioners whose practical observation and experience, certainly entitles their opinion to respect, think the strong compound recommended in the treatment of cholera is unrivaled in its efficacy in this complaint also.

The treatment of dysentery is so similar to that of this form of disease, that we must refer to that subject for a more extended account of the treatment. In a large majority of dysenteric cases

we find that they commenced with simple diarrhœa, hence the similarity of treatment.

The same remark will also apply to the treatment of Cholera, for this fomidable disease in most cases begins by a profuse diarrhœa, it only becomes Cholera when these discharges assume the colliquative rice water character with the other attendant symptoms, of collapse. Dr. Condie recommends the following.

The balsam copaiba and spirits of turpentine are among the remedies from which, in numerous cases of chronic diarrhœa, the very best effects may be anticipated. When the discharges from the bowels are small in quantity, and resemble in consistence thin starch or mucilage, or when they are dark-colored and of a rank offensive odor, we are acquainted with no remedies from which the same amount of good may be anticipated. They may be combined with tonics and astringents where these are considered necessary. The spirits of turpentine we employ more frequently than the copaiba; it is, we believe, equally efficacious, while it is more easily taken by the patient, and agrees better with the stomach; it may be combined with simple syrup and water, by adding a few grains of magnesia.

Injections are excellent; likewise pulverized *charcoal* and *magnesia*. In treating the complaint, regard must always be paid to the skin, as well as any other secretion and excretion.

The following syrup or cordial is excellent for bowel complaints, particularly chronic, of children and adults: Take two quarts of ripe *blackberries*, add one pound of loaf sugar, half an ounce of cinamon, one quarter of an ounce of cloves, and one quarter of an ounce of alspice; boil all together for a short time, and, when cold, add one pint of imported (not spurious American) French brandy. After standing for a few days in a close vessel or bottle, it may be strained. This makes a very rich, pleasant, and efficacious syrup, and may be given after the bowels have been well cleansed. Dose, from a tea-spoonful to a wine glassful, according to age, three or four times a day. How much better this than mercury!

Especial attention to diet is necessary in all cases of bowel complaints. In general, milk porridge, well prepared, will agree with the stomach, and in some cases will check the disorder, by confining the diet to it alone, or with the addition of stale bread cut thin and toasted thoroughly, or soda or water crackers. Fruit of every description is apt to disagree with the bowels in diarrhœa, unless it be fresh picked, and eaten with some solid food.

Boiled rice and milk, Bermuda arrow-root, elm gruel, sago, tapioca, fresh eggs slightly cooked, essence of beef, boiled chicken, crust coffee, and Irish moss, are such articles as are generally adapted to cases of diarrhœa. Rice scorched, ground, and made into coffee is a favorite remedy with some for this complaint.

Cases of chronic diarrhœa have been cured by a free use of capsicum at meals.

CHOLERA MORBUS AND EPIDEMIC CHOLERA.

Description and Causes.—This disease has been known from early antiquity, and was originally, as the name imports, (χολη, "bile," whence χολερα,) supposed to be owing to an overflow of bile, which was discharged upwards and downwards.

Cholera—epidemic cholera—is said to have been known in India from the earliest ages; but it is of the epidemics of modern times alone that we have accurate accounts. Partial epidemics have been known in Hindostan, from time to time, ever since it became known to the British. In Upper Hindostan it destroyed in 1764, 30,000 natives and 800 Europeans. The disease has long been epidemic in Hindostan; and it is a curious, but, in the existing state of our knowledge, an insolvable problem, to determine the causes which induced it to leave India, and to visit Europe.

The *epidemic* cholera so far resembled the *sporadic*, that it was attended by profuse vomiting and purging, by extreme prostration of strength, and by cramps. But it differed remarkably in these respects; in the circumstance that the matters ejected from the stomach and bowels contained no bile (and this alone is a good reason against calling the disease *cholera*), in the early supervention of collapse; and in the great mortality of the disorder.

The cause by the operation of which the common and appreciable causes of disease give rise to cholera is unknown to us.—That it is in the atmosphere we have every reason to believe; but in what state or how combined, we have been unable hitherto to ascertain. The most probable supposition is, that it is a peculiar poison. It is, however, encouraging for us to know, as we now positively do, from all which has transpired in the history of the disease, that the concealed general or ærial cause is comparatively harmless,

unless effect is given to it by subjecting it to evidently modifying agencies.

Preceding and accompanying the appearance of the cholera in a country or city, there have been deviations from the usual state of the weather and season—unwonted vicissitudes or extremes, with, often, changes in the electrical state of the atmosphere.—These would not probably be of themselves adequate to the production of cholera but for the additional predisposing cause of unfavorable localities. The chief home and seat of cholera is in low, damp situations—on the banks of rivers, or near pools and ponds of water,—or which are encumbered with vegetable remains, and filth of any kind. Those parts of cities thus situated and circumstanced, have always suffered most, and sometimes have been the exclusive seats of the disease.

Experience has also fully shown, that, in regard to the manner of living, the intemperate, the devotedly sensual in any way, they who are unclean in their persons, and who are deprived of a suitable supply of wholesome aliment, are peculiarly liable to the disease, and to perish under its attack. The drunkard has everywhere been singled out as a victim of the disease, on its first appearance in a place. Women of the dissolute and abandoned class were among the foremost sufferers from cholera in India, as elsewhere.

Food of bad quality, irritating the stomach and bowels, has often proved an exciting cause of the cholera. In India, the crops of rice fell short and were damaged, and the inhabitants, whose chief reliance for nutriment was on this grain, suffered dreadfully from the disease. Similar deficiencies and badness of quality of the wheat in Russia and Poland, were attended with the like results. Wherever watery fruit and vegetables were largely used and relied on as food, such as cucumbers, melons, cabbages, etc. the diseases committed great ravages. Meats, which, though nutritive, task excessively the digestive powers of the stomach, are to be avoided, such as fat pork, smoked beef, lobsters, clams, and crabs.

Among intoxicating drinks, distilled liquors are especially pernicious. At all times improper for an habitual beverage, they are little short of poison when used in seasons of epidemic cholera.—Water, under all circumstances the best drink for mankind, may be given of such temperatures, and so prepared by boiling, as to be adapted to every stomach, and to prove both safer and more healthful than any liquid whatever prepared by art.

Any sudden or considerable debility of the nervous system is to be greatly dreaded, as of itself laying the body open to an attack of cholera. On this account, anxiety, fear, and the depressing passions in general, should not be allowed an abiding place in our minds. Many have been destroyed by fear alone—but on the same ground as that on which a tranquil mind is recommended to be preserved, an equable state of the senses and functions generally should be maintained, by regular hours of sleep, regularity of meals, and the accustomed daily exercise.

Long exposure to the sun and great fatigue have been found to be powerfully contributing causes of cholera. If circumstances require such an exposure, additional circumspection is to be exercised in the manner of living in other respects, and in an especial avoidance of the night air and dews, or of getting wet with rain.

Diagnosis.—We shall describe the symptoms of Cholera Morbus and Sporadic Cholera under this head as we consider the treatment to be the same.

The attack is generally sudden. At first the contents of the alimentary canal are evacuated: and then a quantity, an enormous quantity sometimes, of a turbid, yellowish, acrid fluid, is expelled with violence both from the bowels, and by vomiting, the patients complaining of a burning sensation in the epigastrium. As the vomiting and purging go on, clonic spasms of the lower extremities, and especially of the gastrocnemii, occur; the surface of the belly is drawn up into knots; and after a while, the patient, exhausted by the pain and the spasms, and still more so by the copious discharges, grows cold and faint. Sometimes actual syncope happens, and sometimes death.

In the generality of cases, perhaps, before the unequivocal symptoms of cholera morbus declare themselves, there is more or less evidence of general, or of gastro-intestinal disorder; sometimes shivering, headache, pain in the abdomen) nausea, etc.; but, at other times, the disease occurs without any premonitions.—Violent vomiting and purging occur almost simultaneously.

In the first instance, the ejected matters are the contents of the stomach, mixed with a considerable quantity of the secretion from the mucous membrane; but, when the efforts continue, and the duodenum participates largely, the liver is called upon, by the excitation, for an increase in its secretion, and the secreted bile passes through the pylorus into the stomach, and is observed in the ejected matters. This is the simplest and mildest form of cholera morbus. In the more severe forms of the disease, considerable

pain is experienced in the abdomen, and especially in the epigastrium; and violent cramps are felt in the muscles of the limbs.—In cases that are induced by improper articles of diet, there may be more or less frequency of pulse, and heat of skin, with great thirst; but, when the vomiting and purging, and muscular contractions are severe, the surface is pale, the features pinched, the eyes hollow, and the skin is covered with a cold, clammy perspiration. The anxiety is great, and the depression alarming. In the great revolution of functions, produced during the violence of the disease, the urine is commonly suppressed.

The disease does not generally last for any great length of time in temperate climates. An attack frequently comes on during the night, which passes off, and leaves the patient well, or nearly so, on the following day.

In almost all the epidemic visitations of cholera, certain precursory or premonitory symptoms have been observed; some of which, on other occasions, might have been suffered to exist unheeded; but, in consequence of the prevalent alarm, were the source of much anxiety. The alarm, indeed, in some instances, was so great, as to constitute a real *choleraphobia* or *cholera-mania;* the patient being, for the time, in a state of hypochrondriacal monomania; at times, believing himself to be afflicted with a disease which had no existence except in his imagination, and at others magnifying symptoms into inordinate importance. This very anxiety and perpetual direction of the attention towards the intestinal canal may have induced more or less derangement of functions, and have added to the tortures of the individual.

The premonitory symptoms, consisting of more or less derangement of the digestive functions, with diarrhœa to a greater or less amount, have been generally termed *cholerine.* The appellation has, indeed, been applied both to the premonitions, and to what may be regarded as the first stage of cholera.

At times, great and inexplicable debility is experienced, as if the patient had suffered a great loss of blood; vision is impaired, along with giddiness and tinitus aurium; there is also much thirst, with tumefaction of the abdomen and want of appetite.—These symptoms may or may not precede the essential phenomena, which are vomiting and purging; the latter sometimes preceding, for a time, the former. The evacuations are extremely frequent, and, in the very first instance, may not exhibit anything unusual, but soon they are copious, liquid, almost without smell, and resemble in appearance rice water; hence, they are commonly

termed "rice water evacuations." As these evacuations go on, the patient becomes extremely restless and indisposed; violent cramps attack the extremities, and even the muscles of the chest and abdomen; those constituting the calves of the legs are, however, most commonly affected, and next to them, perhaps, the muscles of the fingers and toes. In the meantime, the forces that move the blood are rapidly impaired; the pulse sinks; the extremities first, and, afterwards, the face and the whole body become cold; the features are now astonishingly changed, the eyeballs are drawn, as it were, into the very bottoms of the orbits; the patient is excessively restless, and the thirst almost unquenchable.

The powers of circulation and calorification become more and more impaired; even the breath feels cold; and the thermometer, placed under the tongue, indicates that the animal heat has fallen many degrees. The patient is now in a state of collapse; the surface is blue, or he is *cyanosed*, if we may employ a French term. He is in the "blue stage" of the disease, or in *cholera asphyxia*. The surface of the hands are wrinkled, as if the fluid had been withdrawn from them, and so shrunken, that rings fall from the fingers and shoes from the feet; the features become pinched, owing to the same cause, and the expression is quite characteristic. The cold, expired air has been analyzed, and proved to have undergone little or no change from respiration. Little or no hæmatosis could, consequently, have been effected. The nose is cold, and is said to have become gangrenous in some cases; the urine is wholly suppressed; the voice is husky; the powers of life gradually fail; the pulse is no longer perceptible; the breath becomes slower and slower; and hiccough frequently precedes the fatal termination; the senses remaining unimpaired until almost the last; and, in some cases, the patient raising himself from his bed, under the influence of the cramps, or, when called upon, by the desire to vomit or to discharge the fæces, until within a short time of his death.

This is the course of the disease in fatal cases, which, in every epidemic, have been most numerous, and, what is singular, the average mortality has been everywhere pretty nearly in the same ratio.

In more fortunate cases, the blueness disappears; the pulse becomes perceptible, the heat returns, and general reaction is evidenced by febrile signs, and, at times, great headache; the secretion of urine, which had been arrested during the preceding stage, is restored; the vomitings diminish in frequency, and the alvine evacuations also; the face resumes its wonted expression, and all

the symptoms gradually disappear. Too frequently, however, matters do not progress so favorably. Signs of hyperæmia often supervene; intense headache, delirium, stupor, subsultus tendinum, etc., at other times, the irregularity of circulation, during the period of reaction, attacks other internal organs—as the air passages. The whole system of nutrition, in other cases, becomes implicated, and signs of the typhoid condition, or exanthematous eruptions, appear on various parts of the body.

It has been a question, whether any of the symptoms, enumerated above, can be regarded as diagnostic of Asiatic cholera. The most characteristic, according to general belief, are the rice-water discharges. These have been frequently analyzed. When examined two hours before death, they have had the appearance of whey, the specific gravity being 1,073, with a strongly alkaline reaction. Heat rendered the fluid opaque, and corrosive sublimate very turbid. It, consequently, contained albumen. The alvine evacuations contained the elements of which the blood was deficient—serum, alkali and other salts. The vomited matters were also examined. The character would seem to have differed—according to some being alkaline, according to others, acid.

Along with this character of the matters evacuated—the disturbance of the respiratory and circulatory functions, the icy coldness, the cramps, and the peculiar change of features, give to Asiatic cholera, a character which cannot readily be mistaken.

From the foregoing description, it is manifest that the series of phenomena which characterize this malady, divide themselves into three distinct stages, viz: 1, the stage of irritation; 2, the stage of collapse; and 3, the stage of reaction. The first stage, however, is not always recognized, nor is it attended with any phenomena that can be regarded as peculiar to cholera, or as affording satisfactory diagnostic indications of its presence. It exhibits a more or less obvious state of morbid excitement of the nervous system, and disorder of the gastric and intestinal functions, which may arise from various causes, and pass away without being followed by the diagnostic symptoms of cholera. The characteristic or diagnostic symptoms of cholera do not exhibit themselves until the disease has advanced to its second stage; and it is only in this fully developed state of the disease, that it can be certainly recognized. The phenomena which characterize this stage of the malady, are, 1, frequent discharges from the stomach and bowels of a serous or watery fluid, resembling rice or barley water; 2, complete suppression of the biliary and urinary secretions; 3, profuse cold

and clammy sweat; 4, a failure and almost total suspension of the action of the heart and arteries; 5, complete failure of the animal heat, as evinced by the icy coldness of the surface, and the cold tongue and breath; 6, a livid or bluish hue of the skin, with a corrugated state of the hands and feet; 7, a thick and black state of the blood; 8, spasms or cramps of the muscles, commencing in the extremities and proceeding to the trunk; 9, an early and extraordinary alteration of the expression of the countenance; 10, and finally, with all these violent symptoms, an almost undisturbed state of the mental faculties and sensorial powers.

It is manifest from this assemblage of symptoms, that the diagnosis of cholera, when fully developed, can very rarely be attended with any material difficulty. The disease with which spasmodic cholera would seem most liable to be confounded, is the ordinary cholera—the cholera morbus. Where the evacuations are tinged with a yellow or greenish hue, where the matter vomited is bitter to the taste, while the skin remains warm and the pulse good, the disease may, with confidence, be regarded as ordinary bilious cholera; but where, after the first emptying of the primæ viæ, the evacuations are of a watery consistence, colorless, turbid or white —when no urine is voided, when the surface becomes cold, the features collapsed, the spirits depressed, and the pulse flags, the case may almost certainly be regarded as cholera asphyxia. In the more advanced period of the disease, the total cessation of the pulse in the extremities—the icy-cold and clammy skin, the shriveled, corrugated and bluish appearance of the hands and feet, and the general depression, can leave no doubt as to the nature of the malady.

Treatment.—The principal indications of prescription in this affection, are to allay as speedily as possible, the irritability of the stomach and bowels; to restore the action of the skin and liver, and to determine the circulation from the internal to the external parts. As the progress of the disease is extremely rapid, the most prompt and energetic means should be at once resorted to, with the view to moderate its violence. No. 6 and composition will in most instances, meet efficiently, the exigencies of the disorder.—Two large table-spoonsful of the No. 6 may be given every ten or fifteen minutes in sweetened water, to an adult when the distress in the stomach and bowels is violent, followed by composition.

If the patient has rigors, or feels cold in any degree, he should be warmly covered up in bed and hot bricks applied to the feet. An emetic should be given immediately if relief is not obtained.

A compound prepared after the following recipe, has gained great notoriety among the Botanic fraternity, and justly too—for its power in removing as well as preventing this disease.

Take cayenne, xantoxylum, golden seal, nerve powder, bay berry, each one ounce, ginger, two ounces, mix and put into a small bag and boil in one gallon water to two and half quarts, to which add six pounds loaf sugar, two quarts fourth proof brandy, and three pints of No. 6. This may be given in quantity as the urgency of the symptoms require.

No disease has ever pervaded this country, that spread before it such universal terror and dismay, as the one now under notice. The rapidity of its progress towards a fatal termination, justly won for itself such a reputation that people fled from its approach with horror and consternation. Doctors met it in its advance with the hope to learn something of the features, of its peculiarity and the outlines of treatment, that they might be the better qualified to afford assistance when it arrived within the limits of their own practice. Nor will it be denied that the best of men with the best of motives have combatted valiently in the front ranks of the regular profession, against this wide spread and formidable pestilence—a pestilence "that walketh in darkness and wasteth at midday," committing such indiscriminate havoc in every kingdom upon earth. The sincerity of their motives, we say, must not be impeached when we see them, in many instances, falling a sacrigce to their own ambition, in their efforts to relieve suffering humanity; and if the success of their practice has not been equal to their deserts, the fault must be charged to education and the means they employed rather than wrong motives—to their ignorance rather than knowledge.

In the inception of the malady, when the patient complains of irregular appetite, disordered digestion, a sense of fullness, or uncomfortable feeling in the region of the stomach, unusual heat in the bowels accompanied by a noise and commotion, diarrhœa, or a peculiar feeling as if a diarrhœa would on the slightest cause come on, No. 6 and composition must be speedily resorted to, or the compound recommended under the head of cholera preventive, (see recipe in last chapter on cholera-morbus,) which will invariably, with a proper regulated diet, correct the intestinal and hepatic (liver) secretions, and allay the vascular and nervous irritation of the alimentary canal, and thereby restore the harmony of the digestive functions. By this timely mode of management,

the promonitory or incipient indications of the disease, have uniformly been speedily and effectually subdued.

But when the disorder has assumed a more serious character, the pulse at the wrist irregular, or hardly perceptible, the evacuations put on the appearance of *rice-water*, the patient experiences cramps and coldness in the extremities, rigors, vomiting, purging and that peculiarity of the fingers, which look as if they had been *par-boiled*, supervene, and with all, when there is a paucity of urine, remedial measures of the first importance must be put in operation without delay; for it must be kept in mind at *this* stage of the disease, without them, termination of life cannot be far distant. The physician and attendants must not now be idle.—The third preparation should be given in wine-glass doses, and repeated every ten or fifteen minutes; the cholera preventive, and No. 6, should also be given without limitation. Enemas must be repeated every fifteen or twenty minutes, composed of cayenne pulverized, one teaspoonful, and an equal quantity of composition, and one pint tepid water. Hot bricks, or rocks, (wrapt in wet cloth,) should be applied to the feet, legs and sides, and the muscles or parts that are cramped should be constantly rubbed with hot, dry flannels, and the patient kept in as warm a place and condition as possible. This practice must be persevered in until a reaction, or an improved condition of the patient indicates the attainment of our object. If the patient can be made to vomit freely—if a due degree of warmth and perspiration can be re-established upon the surface, the cramps subdued, and the pulse comes up, so far, certainly, our object is accomplished, although the patient may not be free from danger. After these extremely harrassing symptoms have subsided, the patient should be suffered to obey now his inclination and take some repose. If that livid and corrugated appearance of the hands and feet have disappeared, circulation of the capillary system becomes active, full and healthy, and the whole body perfectly warm, but little need be done further than to regulate the diet, and repeat at suitable intervals, the composition, No. 6, and cholera preventive, and perhaps occasionally an emetic. For common drink, (as the patient is harrassed with constant thirst,) any of the mint teas may be made and drank freely, when cold, or even cold water to any extent, provided it is spiced a little with ginger or cayenne pepper, or even a little good brandy.

Again we may suppose a state of collapse has supervened before the patient is seen; our treatment in this stage of the com-

plaint cannot essentially vary from that recommended above, and it should be promptly and energetically adapted; at the same time frictions with hot, dry flannels should be constantly applied to the whole surface. The permanency and beneficial effects of this practice in cholera, cannot be doubted. Ought not the remedies on which the strongest dependence is placed, by the regular practitioners, in the management of cholera, when by their own reports, they cannot cure more than three out of seven, hereafter, ever to be held in *disgrace!*

The want of success which has followed the practice of the Old School is indeed melancholy. From all the statistics we have examined we cannot find 50 per cent. of cures, and yet, in our practice the success has been remarkable; only from 3 to 5 per cent. has been the mortality, and in many localities the success has even exceeded that. The Old Practice has been and is now calomel and opium, and hence we cannot expect any thing else, and this poisoning "*treatment*" has been carried to an almost incredible extent. Prof. Dunglinson says.

The quantity of calomel that has been exhibited in this disease, exceeds belief. It is a favorite remedy with the practitioners in India, whose example led to its employment elsewhere. In the western part of this continent, fifty or one hundred grains were occasionally given every hour, until as much as a quarter of a pound was taken; and one practitioner, (*Prof. Cook*, of Louisville, administered it in two drachm doses in mild cases, and in ounce doses in the more severe, repeating them several times. It is affirmed, indeed, (*Professor Eberle,*) that a *pound and a half* of calomel has been given in a case of cholera, and the patient died!

The suspension of all absorbent action in the stage of collapse —for it was in these cases that the calomel was generally given so largely—and the fact, that it passes through the bowels in the manner above mentioned, account for the absence of any mercurial effect upon the frame.

If, notwithstanding an emetic has afforded relief, the patient should relapse, no matter at what period, whether of a day or an hour, another emetic must at once be given as the only means of arresting the disease. We have known one case in which four emetics were given in the course of twelve hours, and another in which seven or eight were given within the lapse of thirty-six hours, with the happiest effect, and without which, there is no doubt, the patients would have both been numbered with the dead.

We are satisfied, in short, that emetics are the principal dependence in cholera, and ought to be repeated as often as appears necessary to keep the patient in an improving condition. During the intervals, the patient should have repeated small doses of cayenne, cholera syrup, diaphoretic powders, or tincture of myrrh, and a decoction of bayberry, cherry bark, and pond lily, or cat-tail flag-root boiled in milk, or any other astringent article which may set well on the stomach; giving any or all of them alternately or in any other prudent manner which the circumstances of the case may suggest.

When the disease is entirely removed, the patient may take, occasionally, a small dose of either the cholera syrup or bitter tonic, and, more frequently and freely, of the wine bitters or the tonic cordial, to promote digestion and restore the strength; carefully avoiding every thing, in the least degree, liable to produce relapse.

Before quitting this subject, we feel disposed to offer a few remarks on the change of diet so commonly resorted to wherever the cholera prevails. Much has been said, written and printed, in relation to this matter, a great portion of which we consider erroneous. No sudden and essential change can ever be made in the quality of our food without affecting the irritability of the bowels; therefore the utmost care and discretion should be exercised in this particular when exposed to an attack of cholera. We ought certainly to avoid everything that is hard to digest, as well as those articles that we know are apt to irritate the intestines and produce diarrhœa. In all other respects we should pursue our usual course of diet, providing it be a tolerably regular one; but by all means avoid overloading the stomach, and especially hearty suppers. Eating too much, we have no doubt, is a more prolific cause of cholera than eating a wrong article, though both have done much mischief. As a general rule, when exposed to cholera, we should eat less than usual, as most persons habitually eat too much. Irritability of the stomach and intestines seems to be what mainly predisposes to cholera; therefore, overloading the stomach, or eating food hard to digest, or that is apt to produce a diarrhœa, will be sure to increase the hazard of an attack of the fatal malady. It, therefore, behooves all to exercise prudence in regard to diet, and not suddenly to make great or essential changes in it; and yet to avoid such articles of food as are known to irritate the stomach and intestines or produce diarrhœa; and likewise never overload the stomach, especially at supper. These

cautions ought also to be particularly observed during recovery from cholera.

Another error, as we think, has been committed in relation to this complaint, in the employment of remedies as *preventives*.—When a person is in good health, as a general rule, he can take no medicine that will make him any less susceptible of disease; but subjecting his organs to the influence of medicine whilst in health, should he be attacked, the remedies will not then produce so prompt and so good an effect as if none had been previously taken. We therefore think the practice of taking preventives of cholera, at best a doubtful, if not an absolutely pernicious custom. Whilst in health we need no medicine, but when once attacked with cholera, no time should be lost in employing the best means to check it; and among the most important, we think, is quietness and rest; for which purpose let the patient retire to bed and remain there until fully recovered.

To warm the system, empty the stomach, cleanse the mucous membrane of the stomach and bowels of morbid secretions, and sustain the circulation, are the grand objects to be kept in view in the treatment of all cases of cholera. The means requisite to obtain these desired results, are the hot air bath, or steam bath, stimulating lobelia emetics, vegetable astringents, active stimulants, and external warmth.

When cholera comes on suddenly, and the temperature of the body is not reduced much below the healthy standard, an emetic should be given at once, and the dose repeated until the stomach is thoroughly evacuated. External warmth must always be applied, by means of bottles of hot water, or hot bricks wrapped up in cloths, placed at the feet and around the patient.

When the attack is more gradual, the circulation feeble, the surface and extremities cold, the hot air or steam bath must be administered promptly, to warm the blood, restore capillary circulation, and relieve internal congestions; and immediately after the bath give the emetic in full doses.

CHOLERA INFANTUM—INFANTILE CHOLERA.

Description and Causes.—Of the diseases to which children are liable in the middle and southern portions of the United States, few produce a greater amount of mortality than *cholera*

infantum, or the "summer complaint." It is an endemic of all our larger cities, during the season of the greatest heat; attacking children between four and twenty months of age, or at the period of the first dentition. So generally is it confined to this period, that an infant's second summer is considered by mothers as one of unusual peril, and should it escape an attack at this period, or pass safely through the disease, it is considered to have a fair chance of surviving the period of infancy.

Cholera infantum is evidently produced by the action of a heated, impure and stagnant atmosphere, directly upon the skin, and indirectly upon the digestive mucus surface, at an age when the latter is strongly predisposed to disease from the effects of dentition, and from the increased development and activity of the muciparous follicles which takes place at that period.

The dependence of cholera infantum upon a high degree of atmospheric temperature is shown by the fact, that its prevalence is always in proportion to the heat of the summer; the disease increasing and becoming more fatal with the rise of the thermometer, and declining with the first appearance of cool weather in the autumn. That, however, the disease is not produced by heat alone, in its more aggravated forms, is proved by its occurring almost exclusively in the larger and more crowded cities of the middle and southern States, and by its especially prevailing, and being most destructive to life, among the children of the courts and alleys, or in situations abounding with accumulation of filth. When it occurs in the country, which is rarely the case, it is almost exclusively in low, damp, and otherwise unhealthy situations.

The process of dentition is unquestionably a predisposing cause of the disease; while premature weaning and errors in diet act often as exciting causes.

From the official reports of deaths in Philadelphia and New York, it would appear, that in the former city, of two hundred and twenty-nine deaths assigned to "summer complaint," one hundred and forty-two occurred in children under one year of age; seventy-five in those from one to two years old; and twelve in those from two to five years. It rarely occurs in infants under three months. As the disease is evidently connected with the season at which malarious influences are present, although to a decidedly less degree than in the months when cholera infantum has nearly ceased, it has been supposed that, like the bilious intermittent to which it has been assimilated, (Prof. Rush, Con-

die, of Philadelphia,) it may be caused by malaria. There can be no doubt, that vitiated air has a marked agency in its causation, as has been before observed, but it is not probable that it is produced by the malaria that gives rise to fevers. It certainly is uncommon in districts in which intermittent and remittent fevers are annually and extensively endemic.

Under the predisposition engendered by great atmospheric heat and vitiation, it is clear, that improper aliment may be an exciting cause; hence it is, that children, brought up on spoon-meat, suffer in greater numbers than those that are nourished at the breast; and, in like manner, dentition may contribute to its production.

The mucus membrane of the bowels generally exhibits evidences of inflammation, and especially the follicles, which have indeed been considered the primary seat of the disease. (Prof. Horner, of Philadelphia.) When the disease has continued for some time, more or less ulceration is met with, and occasionally considerable portions of the intestinal canal have been found so much contracted as scarcely to admit a small-sized quill.

Diagnosis.—In many cases, the disease begins with diarrhœa, but, in others, both vomiting and purging come on at first, without any premonitions; or the child may have suffered for a time under gastric or intestinal derangement. The pulse is usually frequent, and somewhat tense, and there are almost always manifest signs of febrile irritation. The discharges are at first extremely fluid, and often frothy; sometimes tinging the cloths green, and, at others, leaving mucus upon them. In very severe cases, the system becomes rapidly prostrated, and the child may die in the course of twenty-four hours; but, more commonly, the disease continues for a few days before either the tendency to convalescence or to death is manifest. As in the cholera morbus of the adult, there is often severe intestinal pain, which may be increased by pressure, and, at times, the muscles of the abdomen and extremities contract spasmodically. The thirst is excessive, and the appetite gone, or singularly capricious. If the disease is about to terminate unfavorably, emaciation makes frightful progress, the febrile irritation is constant and manifest; the child becomes restless and comatose, and gradually sinks—the fatal termination being at times preceded by a convulsion.

Frequently, the evacuations exhibit the existence of great irritability of the canal, the food passing rapidly through, and without undergoing any change. At other times, they have a putrid or cadaverous odour.

In the more protracted cases, these appearances are more frequently met with, along with aphthæ of the mouth, meteorism of the abdomen, and other signs of follicular inflammation. At times, before death, a vesicular eruption appears extensively on the chest. (Prof. Dewees, of Philadelphia.)

The indication of recovery is the appearance of feculent matter, and of the ordinary secretions in the evacuations.

In many cases, some degree of delirium, with an injected and wild appearance of the eyes, and a tossing of the head backwards and forwards, is early manifested. When this is the case, we have frequently seen the patient attempt to bite or scratch his attendants.

The disease usually runs a protracted course. The discharges from the bowels continue to be frequent and profuse, but dark-colored. like dirty water, or the washings of stale meat, and often very offensive. They not unfrequently, however, are small in quantity, and composed entirely of a dark-colored mucus, mixed with the food and drinks that have been taken. The emaciation of the patient becomes extreme; his eyes are languid, hollow and glassy; his countenance pale and shrunken; his nose sharp and pointed; and the lips thin, dry and shrivelled. The surface of the body becomes cool and clammy, of a dirty, brownish hue, and often covered with petechiæ. The tongue is dark-colored, smooth and shining, or covered, as well as the parieties of the mouth, with aphthæ. In many cases the child lies constantly in an imperfect doze, with half-closed eyelids, and so insensible to external impressions, that flies will frequently light upon the half-closed eyeballs without the patient exhibiting the least consciousness of their presence. The abdomen becomes more or less tympanetic, and the hands and feet of a leaden hue, or palid and œdematous. The fauces, becoming dry, causes a sense of uneasiness, which induces the patient to thrust his hand deep in the mouth, as if to remove some offending substance.

In many of the protracted cases, an eruption of very minute white vesicles occurs upon the neck and breast. This Dr. Dewees considered to be invariably a fatal symptom; but we have seen many patients recover, even when this eruption has been the most extensive and distinct.

The patient, unless relieved from his suffering by a judicious treatment becomes daily more and more exhausted, rolls his head about when awake, and utters constantly short, plaintive, scarcely audible cries. He falls at length into a state of complete

coma, death being frequently preceded by a convulsive attack. Not unfrequently, at a much earlier period of the disease, the brain becomes affected, and the child dies with all the symptoms of acute meningitis.

Cholera infantum is of very variable duration. In violent attacks, the prostration which suddenly ensues is occasionally so extreme, that the patient is destroyed within the first twenty-four hours. Usually, however, the disease is of many days' or even weeks' continuance, and the patient generally sinks, apparently from a total cessation of the nutrition of the system.

Treatment.—Perhaps there is not in our whole Pharmacopoeia a more valuable remedy for this complaint than the *Neutralising Mixture*, the following is the formula :

R.—Rhubarb Pulv. - - - - -	2	scruples.
Salaratus or Soda, - - - -	2	"
Peppermint pulverized, - - -	2	"

Mix in half pint boiling water, sweeten with loaf sugar, and add a table spoonful of brandy, or sufficient to keep from souring. Dose: table spoonful to children of 2 to 3 years, and double to older children.

The bowels should be acted on by Castor Oil or Leptandrin; if the Neutralizing Mixture does not act sufficiently, and this treatment, followed by the Syrup of the Rubus Vil. (Blackberry.)

Our Cholera Syrup weakened to suit the case of infants will be found very useful.

Particular attention must be paid to the state of the skin. If the disease is caused by morbid humors retained in the system and thrown upon the intestines, how necessary is it that they should be thrown off through the proper excretory ducts? Therefore such means and medicines must be used as will divert the vitiated fluids from the centre to the surface. The feet and body must be often effectually bathed and rubbed with *weak ley water* applied tepid; this will prove very cooling and refreshing, and lessen the violence of the disease. In order to promote gentle perspiration, as well as to allay irritation or pain, medicine should be given that has this twofold effect, which is the *diaphoretic powders*; and they are particularly serviceable when the child is wakeful, restless, and in pain; for a child a year old give a few grains in a little tea; if the desired effect is not produced in three hours, repeat the dose. Mucilaginous and cooling drinks are very useful in this complaint. The *benne plant* makes an excellent mucilaginous drink; a few leaves, dipped in a tumbler of cold wa-

ter, immediately form a clear, tasteless, cooling, and soothing mucilage, which it is stated, has cured hundreds of cases without any other preparation. The benne plant is annual, and very easily raised, by sowing a few seeds in the garden, in the spring, and should be kept in every family. When the disease assumes a chronic form, and proves very obstinate, additional means may be necessary to remove it. In such a stage of the complaint, after proper evacuations, give the *blackberry syrup*, and occasionally an *injection*.

Capsicum, though unpleasant to administer to children, is nevertheless one of the most valuable medicines in all cases of disordered bowels. There are few cases, probably, of cholera infantum, that may not be cured by a timely and free use of cayenne pepper. An additional quantity of capsicum, added to the composition or spice bitters, will render their use more effectual. A very good way to administer pepper to children, is to add it to a small quantity of boiled milk. It is generally more effectual, however, given in the form of simple tea sweetened. When the tongue is dry and the patient thirsty, the pepper tea should be used instead of the composition and bayberry. We frequently combine pepper with ginger, making a strong tea of them, and give a table spoonful, with the addition of ten or fifteen drops of the tincture of lobelia, every half hour.

During the active stage, or until the disease be checked, a most careful attention will be necessary in the selection of food.—It is better to give the patient no food, at least for a reasonable length of time, than to introduce such into the stomach as it cannot digest. Bermuda arrow-root, gum arabic, crust coffee, milk porridge, Irish moss, oat-meal gruel, and barley-water, form the most suitable articles of diet. It will be proper, in severe cases, to use some one of the above articles for infants that have not been weaned, for the mother's milk will in some cases be thrown up in solid masses soon after it is swallowed, or passed off by the bowels in an undigested state. The excessive thirst attending the disease will induce an infant to take the breast almost constantly, and take large quanties of milk into the stomach, which sometimes forms into masses of cheese-like substance, and will greatly increase the suffering, and even endanger the life of the patient. Drink, as well as food, should be given in very small quantities. A teaspoonful of gum arabic water, or of barley-water, is as much as should be given at once, to infants, in cases where the stomach is very weak; this quantity, however may be given frequently. By

dissolving gum arabic in composition, or spice bitter tea, it will supply both food and medicine. The following constitutes a suitable article of diet in cases of bowel complaints in general, to-wit—tie a portion of wheat flour in a bag, put it in a kettle of boiling water, and boil it four or five hours; then scrape off the wet part and grate the flour and make a gruel. To be salted to suit the taste.

As long as food passes through the bowels undigested, such articles of diet must be given as are least disposed to sour or ferment, such as baked flour gruel, elm gruel, boiled milk thickened with elm, or baked flour, gum arabic mucilage, and crust coffee; and even these should be used in very small quantities. The thirst may arise from a curative action in the stomach, and if large quantities of liquids be taken, the stomach may thereby become oppressed, and unable to recover its natural action.

The Bitter Herb Poultice applied to the bowels, and which we so often recommend in this work, will be found especially useful in severe cases of this disease.

A strong decoction of Ceras Serot, (Wild Cherry,) with a suitable quantity of Slippery Elm to make it mucilaginous, will be the best for enemas, administered in small quantities, lest it should be too soon discharged, if given in larger portions.

DYSENTERY—BLOODY FLUX.

Description and Causes.—Dysentery is unquestionably an inflammatory disease of the lining membrane of the colon, and has therefore been properly described as a colitis. The inflammation is not, however, generally restricted to the colon, but extends into the small intestines.

It has been ascribed to exposure to wet and cold; to the use of unwholesome food; to the agency of malaria; to contagion.

Weather and season have a manifest influence in the production of dysentery. In temperate climates, like our own, it is an autumnal disorder. In tropical countries it is observed to be more common and more severe when rains succeed to long-continued drought. In respect to this, as in other bowel affections, a high diurnal temperature of the air appears to be the predisposing, and exposure to cold the exciting cause. Great vicissitudes of temperature are very frequent and very pernicious,

even under the torrid zone. Scorching days are followed by extremely cold nights. The dysentery which arises under these circumstances is apt to run on into the ensuing winter. Soldiers in the field against an enemy are peculiarly obnoxious to the agencies which favor or generate the complaint. Marching, or engaged in actual conflict, during the day; bivouacking at night, often in the open air, and under every variety of weather; ill-provided, too often, with clothes and bedding; their food scanty, precarious, or of bad quality; seizing the many opportunities which their dreadful trade supplies of license and intemperance; depressed, it may be, by disaster or defeat; we need not wonder either at the prevalence of dysentery among them, or at its untractableness while they remain subject to the same morbid influences, neither can the causes be warded off from the patient, nor in general, can the patient be removed from the causes.

It frequently occurs about the same time with autumnal intermittent and remittent fevers, and with these it is often complicated. It is likewise frequently combined with typhus. A late writer supports the proposition that the simple dysentery is of itself never contageous, nor the intermittent and remittent forms of the disease; that the combination with typhus is alone possessed of that property; and this he inists, originates not in the virus specific to the dysentery, but in the contagion of fever. Others have, however, given it as their opinion, that the contagion arises from the effluvia of the fæces of dysenteric patients and not from their febrile perspiration or breath.

The dysentery is much more prevalent in warm climates than in cold ones; and in the months of August, September and October, which is the rainy season of the year in the West Indies, it is apt to break out, and to become very general among the negroes on the different plantations. The body having been rendered irritable by the great heat of the summer months, and being exposed suddenly to cold or moisture with open pores, the blood is thereby thrown from the exterior vessels upon the interior, so as to give rise to dysenteries.

The dysentery of tropical climates is usually found connected in some way or other with derangement of the liver; but whether the one is a cause or a consequence of the other, observation has not accurately determined; for sometimes inflammation of the liver precedes the rise of dysentery, at other times it follows in succession, and in some instances there are evident symptoms of both diseases existing from the commencement to the termination of the case.

Diagnosis.—Its characteristic symptoms are, griping pains in the abdomen, followed by frequent, mucous or bloody stools, straining and tenesmus. In chronic cases pus is sometimes discharged from the bowels. The acute form or stage of the disease is attended with fever.

The difference between dysentery and diarrhœa are obvious enough. Both of them may be accompanied by griping pains; in both the stools are frequent and loose: but in diarrhœa they are fecal; in dysentery there is retention of the natural feces, or they are expelled from time to time, in small, hard, separate lumps, termed *scybala.* Again, straining, and tenesmus, and the excretion of mucus, which is often tinged with blood, form no necessary features in diarrhœa; whereas in dysentery these symptoms are prominent and constant. These nosological distinctions are true and useful, although in our actual intercourse with the sick, we do not find them always or strictly observed. Some of the worst forms of dysentery *commence* with the ordinary symptoms of diarrhœa.

Dysentery consists, essentially, in inflammation of the mucous membrane of the large intestines; yet not of the whole of that long surface indiscriminately. Observation of the course of the disorder, during life, and of the morbid appearances visible after death, leads to the conclusion that in simple dysentery, marked by tormina and tenesmus, and frequent dejections of sanguinolent mucus without fecal matter, the inflammation chiefly affects the *rectum* and the *descending colon.* When the earlier portions of the large intestines are involved in the diseased process, the stools at the outset are often composed, in great measure, of excrement in an unnaturally fluid state, and mingled with blood and slime. We generally speak of these circumstances as constituting *dysenteric diarrhœa.*

This disease may be either acute or chronic. In the *acute* affection, there is violent inflammation as well as spasm; so that there is considerable feverishness, quickness of pulse, heat, thirst, pain in the abdomen, not only coming on in fits, like tenesmus (griping,) but pain that is constant, and increased on pressure; together with dryness of the skin. This state may go off in a few days, or it may last for a month; after which time, perhaps, we may call it "*chronic* dysentery."

The *chronic* form of the disease, is much less violent than the *acute;* and is attended with much less pyrexia. Indeed, the pyrexia, in the chronic form, may at last become hectic. The intestines be-

come diseased; suppuration and ulceration occur; and we have hectic fever. Sometimes in the chronic form there is no fever at all; for it degenerates into diarrhœa: so that, at last, the patient complains only of mucous stools and tenesmus. The fæces not being retained, it may degenerate into diarrhœa; so that we have dysenteric diarrhœa:—that is, diarrhœa characterized by great griping and a discharge of mucus.

The anatomical lesions in dysentery have been divided by Dr. Cheyne into two classes: in one the coats of the intestine were not thickened; in the other they were. In the former, the mucous membrane of the colon was increased in vascularity, without abrasion or ulceration; or it was covered by coagulable lymph, or simply abraded, and its epidermoid coat removed. Sometimes the mucous membrane was ulcerated; the portions of membrane intervening being of an unnatural appearance. Lastly, the mucous membrane was partly ulcerated, and partly covered with coagulable lymph. In the second class, or that in which the mucous membrane was thickened, there was found, in one case, simple abrasion, in another ulcerations; the portions between the ulcers being of a natural appearance; sometimes the mucous membrane was rugous and ulcerated; sometimes ulcerated and filamentous, hanging in shreds as if sphacelated; or at another time partly ulcerated, partly removed, exposing the muscular coat. In many of the preparations, the mucous membrane, when not eroded or ulcerated, was covered with an exudation of coagulable lymph.

Numerous large holes in the rectum and lower part of the colon, regularly round and vascular, with elevated edges, at first supposed to be ulcers, were found, on more careful inspection, to be the ducts of mucous glands enlarged, and in the advanced stages, either ulcerated or connected with a cyst formed of the lining membrane of the duct, which secreted a gelatinous matter, whereof these cavities were often full.

The stomach, small intestines, and liver, were implicated to a considerable degree in some of the fatal cases recorded by Dr. Cheyne. The continued inflammation, of increasing intensity, in the order of descent, from the small to the large intestines, is thus described: "The mucous membrane of the stomach and small intestines sometimes presented an inflamed appearance, which in general became more remarkable as we approached to the great intestines; then ulceration began to show itself; at first superficial, afterwards laying bare the muscular fibres of the intestines; the ulcerations became larger, more numerous, and deep as the rectum

was approached; but it was remarked that the last three or four inches of the rectum were sometimes pretty sound. The peritoneum was found less diseased than might have been expected." In a majority of dissections the liver was apparently sound, but in a good many instances remarkably otherwise; in two cases there were abscesses formed in its substance, and in a considerable number of bodies it was in a state of great sanguineous congestion.

If the fæcal discharges be examined under the microscope, we meet with long strings of coagulated fibrin intermingled with blood-corpuscles. Granular cells resembling pus-corpuscles are mixed with numerous flattened, spherical and cylindrical epithelial cells, and the whole are embedded in the structureless stroma of the mucus. Vibriones are scarcely ever present, but confervæ and sometimes fermentative fungi occur in great excess, and apparently in a direct ratio with the degree of acidity presented by the evacuation.

The *prognosis* must vary with the intensity of the disease and the concurrent circumstances under which we meet with it. Sporadic is less alarming than epidemic dysentery, and in this latter, our augury will be unfavorable according to the persistence and violence of the fever, as when this is of a typhoid or remittent character, and occurs in low and damp situations, and in badly ventilated lodgings, and among men crowded together, as in ships, camps, prisons and hospitals. Chronic dysentery may last for weeks, months, and even years. If a person has acute dysentery in the latter part of the summer, the disease is sometimes greatly mitigated, but not entirely cured, by appropriate treatment; and it assumes the chronic form, which often persists during the whole winter, and is only removed on the approach of warm weather in spring or early summer.

It would be a point of no little interest, to be able to determine when ulceration in the colon begins, as not only influencing us in our prognosis, but also, to a considerable degree, in the entire treatment. That this lesion is curable we are well assured, from the fact having been repeatedly noticed, that, in persons who had been examined after death from another disease, long subsequent to the attack of dysentery, smooth spots, cicatrices, were met with, taking the place of the ulcers which had healed. The second stage of dysentesy is said to commence when pus appears in the stools, but there are cases in which the disease pursues a chronic course, and terminates fatally without any such appearance. Discharge of pus does not necessarily imply ulceration; for as we learn from

Dr. Cornuel, he has examined cases in which no ulceration has been found, and yet pus in large quantities was occasionally contained in the colon. In some mild cases the pus passed is small in quantity; but more commonly it amounts to several ounces in the twenty-four hours, and may be voided with or without blood, or with shreds of lymph, lumps of a sebaceous substance, and fæcal matter. Portions of mucous membrane, varying from a few inches to a few lines, are often passed in the dysentery of the West Indies, according to Dr. Cornuel, and in a gangrenous state during the second stage of the disease.

Treatment.—It is unnecessary for us to remark that this form of disease is very mortal in the Allopathic profession, but in the Reform Practice we have great success. Prof. J. D. Friend, M. D., of New York, recommends the following treatment which we consider judicious.

In the first days of the disease a lobelia emetic should be given, using either the infusion of the seeds or herb, and continuing their administration until the emesis is very thorough. This may seem like recommending Lobelia for "everything, no matter what," but when there is so great need of removing hepatic congestion, and restoring biliary secretion, we must use those means that we know will be efficient. Emetics have been too much neglected in this disease, yet they are scarcely advisable after the third or fourth day. The nature of the case does not admit Lobelia by injection.

The whole body should be freely and often bathed with tepid water. An alkali, as saleratus or soda, may be added to the water, and the surface sponged three or four times each day, and this will be found a great sheet anchor in the treating of children who are so averse to taking a proper quantity of medicine. In severe cases, where the skin obstinately resists these efforts to restore its function, some mustard may be added to the alkaline, and the body washed with this until the surface is in a glow. Cayenne may also be used, and a friend of ours once, in a very alarming case, wrapped the patient in a blanket wrung out of warm cayenne water, and this was effectual in getting up a determination to the skin, and saved the patient's life. But in all cases frequent ablution is of the first importance.

Hepatic stimulants are another anchor in treatment. For this purpose we know of nothing better than powders composed of two parts of Lobelia seed and one part of Leptandrin. They may be given in doses of half a grain or a whole grain every four hours and continued until the yellow appearance of the stools

manifests the re-establishment of the biliary secretion. The Butternut (by infusion or extract) is also excellent, and some physicians use the Podophylin and others the Senna, or the Castor Oil, Oleum Ricini et Terebinthinæ (Castor Oil and Turpentine) is a very favorite prescription with many, and our own experience and observation testify to its efficacy, though the compound seems to have little influence in causing a secretion of bile, which is a very prominent indication in the treatment.

Cooling and mucilaginous injections are to be used freely.—Elm water, starch water, infusion of Mallows or Irish Moss, Gum Arabic solution, and similar demulcents may be used in large quantities and frequently, during the whole continuance of the discharges.

In an excellent Essay by J. S. Prettyman, M. D., of Delaware, we find the following.

In the severe form of the disease under consideration, there seems to be an effort on the part of the intestines to relieve themselves of some morbid irritating matter, and hence the powerful spasmodic contractions which produce the intolerable pain with which the disease is accompanied. When free catharsis is once induced, these natural efforts tend to maintain it, and the most powerful cathartics may be omitted and their place supplied with milder remedies of the same nature, such as the syrup of Rhubarb and potash, or Rhubarb and Magnesia, etc.; but at this point in the treatment the Leptandrin is the best adapted remedy ever discovered, and it may be combined with tonics and stimulants as indicated. This effect must be kept up until the morbid accumulation is removed; and during the whole time the nausea and debility must be combatted with their appropriate remedies. As the cause of the disease is thus removed, and the heptatic congestion as a part thereof, subsides, the function of the organs impaired and in a debilitated condition, after the more urgent symptoms are relieved, this condition of the organs will require unceasing attention. The patient's diet must be carefully selected, or cholera morbus, colic and affections of a kindred nature will not only be a constant source of trouble to both patient and physician, but they may suddenly overthrow all the brilliant prospects of a recovery that you have so long labored to bring about. To restore the function of the liver the following we have found to be unequalled by any other remedy or combination of remedies that we have ever met with. The following is the formula:

Hydrastine grs. xx.	Leptandrin grs. x.
Podophyllin " ijs.	Sach. Lactis drachm j.

M. and triturate well together in a mortar and divide into xx. powders one of which may be given every two hours. This not only acts as an efficient hepatic stimulant, but also as a tonic to the enfeebled mucous membrane.

Enemata are of great benefit in the treatment, and in the first stage I prefer the simple cool or cold water to any other. This should be administered in large quantities with the view of distending the bowels, and thus facilitating the evacuation of their morbid contents. In the sanguineous stage the common injection of Dr. Beach is very useful, and in the ulcerative or declining stage, turpentine in mucilage of gum-arabic is appropriate. If large injections cannot be retained a small quantity of cold water will have a soothing effect upon the highly irritated mucous membrane. Iced water is a very refreshing drink for the patient and I have usually found it beneficial. In the early stages the wet sheet pack and the cold sitz bath may also be used with great benefit. These seem to allay the irritability and sooth the excited patient. Although in the early stage of the disease astringents are not admissible, in the declining stage to assist in strengthening the mucous surface they are very useful. The following formula has proved efficacious for this purpose:

R. Hydrastine,
Myricine a. a. grs. x.
Myrihæ Pulv. grs. xx.
Sach. Lactis drachm j.

M. Ft. in chartulus decim dividendus, one of which may be administered every two hours.

This course of treatment judiciously applied will in the great majority of cases prove successful in removing the cause of the disease which may be known by the alteration in the pathognomonic alvine evacuations, which, as heretofore indicated, gradually change from the bilious or sanguine, to a grayish membranous discharge, consisting either of detached false membrane, or the natural intestinal mucous epethelium which is removed as the disease declines, the skin assumes its natural state, the coating leaves the tongue, which is of a shining red color, and all the febrile symptoms disappear.

In the sporadic variety of dysentery, the "Syrup of Rhubarb and Potash" of the Eclectic Dispensatory, administered in table spoonful doses until it produces an aperient effect, is sufficient medical treatment, and with a proper attention to diet, will almost invariably effect a cure.

When the disease assumes a chronic form—which it only does from the want of correct treatment in its early stages—the liver will always be found to be in a torpid state, the food will be badly digested, passing through the patient, often without any impression being made upon it by the digestive organs. There will also be ulceration of the mucous coat of the bowels with thickening and induration in bands and spots. The patient is much emaciated with flat contracted abdomen, dry skin, tongue of a slate color, glossy and morbidly clean, as if skinned; the stools consist of a dirty brown opaque water. In such cases we prescribe the pill of Podophylin and Leptandrin, each containing a half grain of the former and one grain of the latter, one of which may be administered sufficiently often to produce one or two bilious dejections per day. In connection with these the following mixture exerts a very beneficial effect in alaying the morbid irritability and healing and strengthening the diseased intestine. R.—Mucil. g. acaciæ ounce iij.; Pure white sugar, spts. turpentine, comp. spirits of lavender, of each drachms ij.; sweet spirits of nitre drachms iij.; calcined magnesia grs. xij. mix., the dose of which is a tablespoonful three times per day. The cold sponge bath is also a valuable auxiliary, and if the patient's strength will admit the shower bath is still more beneficial.

In the treatment of all the forms of Dysentery it is well to remember that the mildest farinaceous diet must be the only nourishment for a considerable length of time; until the debilitated organs have time to recover a portion at least of their natural strength and vigor.

J. R. Lassiter, M. D., of LaGrange, Ga., has given us the following, which we highly approve:

Take 20 grs. Leptandria Virginica (Black Root) 10 grs. Podophyllin Peltatun (Mandrake,) 6 grs. Sanguinaria Canadensis (Blood Root,) mix and divide into six powders. Give one stirred up in a little water, tea, or molasses every hour until all are taken. The concentrated preparations may be used in proportional quantities. This will generally effect a free action from the liver and bowels, the object desired. After the operation of this dose, give a cordial prepared by taking 1 oz. Iris Versicolor (Blue Flag,) 1 oz. Hydrastis Canadensis (Golden Seal) 1-2 oz. Podophyllin Peltatum (Mandrake) 1-2 oz. Rhubarb, 1-4 oz. Ginger, tincture in one quart Spirits of any kind, filter and add 1 lb. crushed sugar, and 1 oz. Spt. Camphor. Give just enough to act as an aperient and the cure is generally effected in a few days. Sometimes in violent

attacks of this disease the stomach becomes irritated and nausea and vomiting ensue, so as to render it exceedingly difficult to retain medicine of any description in it, and the physician is deprived of the principal mode of admistering medicine. In this condition an enema of a decoction of Lobelia will establish a reaction in the bowels and cause them to expel their contents, when the nausea and vomiting will cease, and afford an opportunity of administering the above recipe, or its equivalent. I have found these means to answer the exact purpose in this affection, and recommend them to the consideration and adoption of our practitioners.

To defend the inner coat of the intestines from the acrimony of its contents, and to counteract the vain attempts at evacuation, it will be necessary to give something to be discharged. Here then we should not only administer mucilaginous substances, such as solutions of gum acacia in milk, preparations of barley, rice, arrow-root, etc., by the mouth; but we should likewise inject a clyster of a similar nature three or four times in the course of the day. All vain attempts to go to stool, as also all violent strainings in evacuating the contents of the bowels, ought carefully to be avoided by the patient throughout the disease; for if obedience be paid to every seeming call of nature, the straining which ensues will be highly detrimental, as little or nothing, except mucus and blood, comes away in four out of five efforts.

There are four morbid conditions present in this disease that point out the general indications of remediate management; first, inflammation to a greater or less extent of the mucous membrane of the intestinal canal; second, a general irritation of the vascular system; third, a torpor of the cutaneous exhalents; and fourth, a disordered state of the functions of the liver. In estimating the relative importance and urgency of these indications, it is to be observed, that torpor of the cutaneous exhalents and derangement of the liver, are generally antecedent to the intestinal inflammation, as well as to the febrile reaction.

It seems reasonable, therefore, to conclude, that the restoration of these functions in the early or commencing stage of the complaint, constitutes a primary object in the treatment of the affection, which is indeed confirmed by the experience of every Reform physician in the land; for in proportion as we succeed in effecting this purpose, we equalize the circulation, lessen the determination of the blood to the bowels, and subdue at once the general febrile excitement, and thereby the local disease in the intestines. In all cases, therefore, where this febrile state exists, the pulse firm and

quick, or tense and frequent; our rule of practice is perfectly plain. A course of medicine, or an emetic daily, if the baths are not practicable, should not be omitted. To subdue, then, intestinal inflammation should be the first step in the treatment; and the adoption of the general rule laid down in all febrile excitements, is to be regarded here also, as most salutary. At the same time the inflammatory action of the mucous surface of the bowels is diminished, the deranged condition of the liver will be abated.

Castor oil, or some mild aperient medicine should be given to aid the syringe in the liberation of the bowels of all matter which may act as extraneous, irritating substances. If the intestines are yet very tender and sensitive, the following compound may be given with great advantage: bayberry, hazel and hemlock, each seven grains, or as much as will lay on the point of a pen-knife; slippery elm, half tea-spoonful; hot water should be added to this combination, and the whole stirred and well sweetened with loaf sugar. This may be repeated every two hours, or oftener, according to the urgency of the circumstances. When the intestines have been much enfeebled and the frequency of the dejections lessened, a small quantity of No. 6, or good French brandy, may be added to the mixture. The tonic cordial will be found almost indispensable in the subsequent treatment of this affection.

In the milder forms of this malady, however, the dysentery cordial, No. 6, or the articles in combination, as recommended above, repeated at proper intervals, will alone be found amply sufficient to establish a restoration.

In the first stage of dysentery, a use of ripe fruits will be proper; but in a more advanced period, where any morbid acidity seems to prevail the stomach, they should not be recommended.

Every sort of food which readily tends to putrefaction ought carefully to be avoided throughout the whole course of the disorder, as also all kinds of fermented and spirituous liquors; supporting the patient's strength with preparations of barley, rice, sago, flour, panada, Indian arrow-root boiled in milk, occasionally varied for gelatinous broths. During the state of convalescence, Port wine or Madeira, or even a moderate quantity of brandy, properly diluted with water, may be allowed.

Persons recovering from the dysentery should observe the greatest caution and regularity in their mode of living, and they should go warmly clothed by wearing flannel next the skin, as the disease is very liable to relapse from any fresh exposure to cold, wet, damp night air, or sudden atmospherical vicissitudes.

The importance of warm clothing, both in the prevention and cure of bowel complaints, is too obvious to require my saying much on the subject; I will therefore only observe, that warmth ought not to be a secondary object; on the contrary it ought to be the first; for if a patient only wear his ordinary clothing, he will receive comparatively but little benefit from any medicine. A waistcoat of flannel or fleecy hosiery next to the skin ought always to be worn, as likewise sliders of the same; and these should be laid aside with caution, and by slow degrees. The writer of a small tract on chronic dysentery lays much stress on swathing the abdomen with flannel bandages, as being the best mode of confining a certain degree of heat over that part of the body which is the seat of the distress; and this practice is represented by Sir Jas. M'Gregor to have been found very serviceable in many cases, both as affording an equal support, and keeping up a due degree of warmth on the surface of the abdomen.

It is necessary also, in almost every stage of the complaint, to keep up a gentle perspiration or moisture of the skin. As the disease is sometimes occasioned by translations of morbific matter to the intestines, means must be used to throw them off by the excretion of the skin; for this purpose *diluent* and *sudorific* drinks may be given; and, when the bowels have been well cleansed, eight or ten grains, or half a tea-spoonful of the *diaphoretic powders* can be given, particularly at bed-time; while they serve to produce perspiration, they relieve pain and procure sleep. If there is much febrile excitement; if the skin be dry and husky, attended with thirst, the surface must be often bathed with *tepid ley water*, and also the feet. As soon as the cutaneous vessels have become thus stimulated, a portion of the morbific matter is translated from the mucous membrane of the intestines, and expelled through this medium. Copious perspiration, however, is not called for in the complaint; a general and uniform moisture of the skin is all that is required. When the pain is located more especially in one particular part, or where there is very great distress accompanying the disease, *fomentations* will be found a valuable auxiliary.

VERMES—WORMS.

Description and Causes.—It is a notorious fact that numerous parasites crawl over our surface, burrow beneath our skin, nestle in our entrails, and riot, and propagate their kind, in every corner of our frame: producing oftentimes such molestation and disturbance as requires the interference of medicine. Nearly a score of ani-

mals belonging to the interior of the human body have been already discovered and described: and scarcely a tissue, or an organ but is occasionally profaned by their inroads. Each, also, has its special or its favorite domicile. One species of *strongle* chooses the heart for its dwelling-place, another inhabits the arteries, a third the kidney. Myriads of minute worms lie coiled up in the voluntary muscles, or in the areolar tissue that connects the fleshy fibres. The *guinea-worm* and the *chigoe* bore through the skin, and reside in the subjacent reticular membrane. *Hydatids* infest various parts of the body, but especially the liver and the brain. A little *fluke*, in general appearance much like a miniature flounder, lives, steeped in gall, in the biliary vessels. If you squeeze from the skin of your nose what is vulgarly called a maggot—the contents, namely, of one of the hair-follicles—it is ten to one that you find, in that small sebaceous cylinder, several animalcules, extremely minute, yet exhibiting under the microscope a curious and complicated structure. Even the eye has its living inmates. But it is, in the alimentary tube that we are most apt to be plagued with these vermin.

Independently of minute scientific divisions into genera and species, there are some broad lines of distinction between these creatures. Thus some kind of worms occupy, as I have said, the interior of our bodies; these are called, accordingly, *entoazoa;* some dwell externally, and are named *ectozoa;* or, more properly, perhaps, *epizoa.*

There are five sorts of intestinal worms, sufficiently common to make it likely that you will meet with some or most of them in your future practice. We shall, on that account, direct your attention first of all to them.

1. A frequent tenant of the human intestines is the round worm, so like in shape, size, and general appearance to the common earth-worm. It is from this species, no doubt, that the whole class are called *worms.* This round worm is often denominated a lumbricus; but that is erroneous; it is a species of ascaris, and it has been named by naturalists the *ascaris lumbricoides*—the ascaris that is like a lumbricus.

2. The *ascaris vermicularis;* or the *oxguris vermicularis.*—These animals resemble slender maggots rather than worms. They are often called simply *ascarides;* or, in the vernacular, *thread-worm;* and they are very much like bits of white thread.

3. The *tricocephalus dispar;* also a small worm, but longer

than the last; its vulgar denomination is accordingly the *long* thread-worm.

4 and 5. Two species of *tænia;* long, flat, articulated animals, resembling pieces of tape. The *tænia solium*, or common tape-worm of this country; and the *tænia lata*, or broad tape-worm.

The ascarides lumbricoides, or round worm, is very like the common earth-worm, and used to be thought identical with it. It runs from five or six inches to about a foot in length, and it is of a reddish-brown color, with a tinge of yellow. The female worm (for they are of both sexes) is much more common than the male, which is smaller also, and may be distinguished by a curved state of its tail, and by the genital organ. Sometimes young ones are met with, about an inch and a half long.

I shall not go into any minute description of the anatomy of these worms. You cannot mistake them, except for earth-worms; and the points of distinction between the two, when known, are easily perceived. The earth-worm, then, is redder than the intestinal worm, and less pointed at its two ends. The mouths of the two differ much. That of the earth worm is a short longitudinal fissure, or slit, placed on the under surface of its small rounded head. In the ascaris lumbricoides, the mouth is situated at the extremity of the worm, is of a triangular shape, and is surrounded by three tubercles.

It is curious that similar differences, only reversed, exist in respect to the other aperture of the alimentary canal, the anus.—In the earth-worm this is terminal, at the very end of the cylinder; in the ascaris it is a transverse slit *near* the extremity and on the other surface of the animal.

Again, the earth-worm has rows of little projections, like bristles, upon its under surface; feet they may be called, for they appear to serve the purpose of locomotion. In the parasite there is nothing resembling this.

The number of these worms existing at the same time in the same person is very variable. The late Dr. Hooper mentions a girl, eight years old, who voided upwards of 200 in the course of one week. An instance is recorded of a soldier who passed 367 in six days. Another patient got rid of 460 in a fortnight.

Fifty or sixty have been found in the same dead body. They often lie in pockets. The corresponding portion of mucous membrane has in some cases been red, in others quite natural. Sometimes two are met with; sometimes one only. So that we cannot

infer with certainty that because one such worm has been voided, more remain behind; although that is always probable.

This worm is more common in the early periods of life than afterwards.

The other species of ascaris, the ascaris vermicularis or thread-worm, resembles the former in some respects, but it differs from it remarkably in size. Here also the female is longer and larger than the male; the one being perhaps half an inch in length, the other not two lines, and very slender.

The thread-worms live principally in the rectum, and sometimes exist there in vast numbers: thousands; and they pass out, or are ejected, matted together with mucus in the shape of balls, or entangled in portions of excrements. Sometimes they emerge of their own accord, and crawl about the neighborhood, getting into the vagina in females, and even into the urethra, and causing intolerable irritation, itching, and distress.

They are seen, when recently expelled, to be very lively; moving their anterior extremity about continually. To this restlessness and activity the animal owes its name, which is derived from the Greek word ασκαριζειν, to leap. The German call it *spring-worm.*

This worm also belongs chiefly to infancy and childhood. It does sometimes infest adults; but generally as the patient grows older the animals cease to trouble him, whether curative means are employed or not. Bremsen, however, knew a person eighty years old, who was nearly killed by them.

The third kind of these round worms is the *long* thread-worm; the tricocephalus dispar. It is from an inch and a half to two inches in length. One extremity, that to which the head belongs, is extremely fine and small; and then suddenly bulges out into a thicker body. The thinner portion is about twice as long as the thicker. Its name is derived from this variation of size. θριξ, a hair, and κεφαλη, the head; the portion to which the head is appended being as fine as a hair. At one time the head was mistaken for the tail, and then the animal was called *tricuris*, from θριξ, and ουρα, the tail. The thicker or body part is rolled up in a spiral form, especially in the male, the female being straighter.—This worm is of a white color, unless tinged by its food. It also affects the large intestine as its place of abode; but the opposite end of that gut, the cæcum, is its favorite spot. It is sometimes met with in great numbers, attached to the mucous membrane by its head; the body hanging loose.

The true tæniæ are more formidable beasts. With a general resemblance between them, there are strong particular distinctions.

The tænia solium, or common tape-worm, has a minute hemispherical head, and a long flat body of a whitish color, composed of many pieces curiously articulated together. The articulated pieces are quadrilateral, very short and small in the creature's neck; they become gradually square as the distance from its head increases; and at length are longitudinally oblong. These portions, or *joints* as they are called, have foramina on their margins, leading to ovaries within. The foramina, which are very conspicuous, are placed alternately on the one side of the animal and on the other: on the right edge of one joint, on the left of that next to it. This arrangement is, however, subject to occasional irregularities. Each joint is let in, as it were, to that immediately in front of it, and the connection between them is not very firm.—It is less firm in proportion as the animal is older, and as we approach its posterior extremity; so that the segments are apt to come away, by stool, separately. They have somewhat the appearance of the seeds of cucumbers or gourds; and the parasites, for that reason, are sometimes called *cucurbitine* worms. Blumenbach and others have supposed that each articulated piece was a distinct worm; but that is not the case: The head of the animal, and its peculiar terminal segment, forbids this belief.

The common tape-worm is very narrow and thin towards its anterior extremity; one-third or one-quarter of a line perhaps in breadth. At its broadest part it may be from three to six lines wide.

The young tæniæ *seem* to be be merely wrinkled; but they are really articulated. The question has been started, whether the lost joints are ever reproduced. It is believed that no new joints are formed, but that the original ones are gradually more and more developed. The animal is hermaphrodite.

Specimens of this worm are preserved, upwards of twenty feet in length. Much exaggeration seems to have existed formerly about its size. It has been said to measure 150, and even 300 feet. In all probability separate portions of several have been estimated as forming part of one and the same worm. There is one case well authenticated (it is cited by Bremser from Robin) in which a tape-worm was found to extend from the pylorus to within seven inches of the anus; adhering firmly to the mucous membrane all the way. The animal has the power of motion. Its

movements are felt by the patient, within them. When recently expelled, and placed in tepid water, it may be seen to shorten itself; nay, portions protruding many feet from the anus have been known to draw themselves back again.

The tænia lata, or broad tape-worm, has often been confounded with the tænia solium; but there are striking differences between them; respecting which, for all practical purposes, it is enough to say that the heads (as viewed through a microscope) are very dissimilar; that the joints of the tænia lata are shorter and broader, and adhere together in a different manner; and that the pores leading to the oviducts are situated not on the edge of each joint, but in the centre of its flat surface. This variety is not so easily broken across as the former; and therefore its segments are less liable to be voided in a separate form. It is probably shorter also than the tænia solium. Fifteen feet have been supposed its average length. Marvellous stories, however, are told on this head.—Boerhaave declares that he effected the expulsion of one, which was 300 ells long, from the bowels of a Russian.

Animals like bags or bladders of water—are of very frequent occurrence in various parts of the body. They are also called *acephalocysts*, headless bags. These are not to be confounded with enlarged Graafian or other vesicles, nor with morbid serous cysts in general. They look like, or rather they are, spherical sacs, having one aperture only, and containing a thin, colorless liquid.—They are usually found congregated, sometimes in vast numbers, within a large cavity or cyst, to which they are not attached. This is a consequence of the peculiar manner in which the animals are propagated. The wall of the cyst is laminated, and the young hydatids bud forth from between its layers. In the species which most commonly infests the human frame, they are born into the cavity of the parent: in some other species they are detached externally. We find therefore a parent bag, full of other smaller bags: which, again, are pregnant, as it were, with their own offspring, the grand children of the primary cyst: and so on, somewhat after the manner of a nest of pill-boxes. Minute in their origin, these parasites may thus increase and multiply till the original cyst attains an immense size, and at length destroys life by its bulk and pressure. Of course the immediate consequences of such pressure will depend greatly upon the parts occupied by the hydatids. You may readily imagine what kind of symptoms are likely to ensue, when they are lodged within the abdomen, within the less yielding thorax, within the unyielding skull. They are more common in the liver than in any other single organ.

There are single cyst-like bodies, with short retractile necks, bearing the generic name of *cysticercus*. One species of this kind, the cysticercus *cellulosus*, inhabits the interfascicular areola tissue of the muscles. It is rare in the human subject, but frequent in the pig; giving rise to that condition of the muscles which is familiarly known as measly pork. This one of the internal parasites with which the organ of vision is liable to be infested.

There is a very singular microscopic parasite, the *trichina spiralis*, dwelling in myriads, sometimes, in the muscles of the living human body. It was first described by Mr. Hilton, of Guy's Hospital, and afterwards more fully by Professor Owen, in 1835. Mr. Wormald, the Demonstrator of Anatomy at St. Bartholomew's Hospital, sent to that gentleman a portion of human muscle, which presented a singular speckled appearance, as if it were mouldy. Mr. Owen found that each speck was a shuttle-shaped cyst, containing a very minute cylindrical worm, coiled up in two and a half, spiral turns. The worm measures, when unrolled, no more than one-thirtieth of an inch in length, and one-seven-hundredth of an inch in diameter; and of course requires, for a satisfactory examination, to be seen through a microscope. The longer axis of the containing cyst lies between, and parallel to, the fibres of the muscle. Fourteen similar instances have since come to Mr. Owen's knowledge.

The *Filaria Medinensis—Dracunculus*—or *Guinea-worm*—has its residence in the subcutaneous areolar tissue. It is a long, slender, round, uniform animal, like a fiddle-string, or a piece of bobbin. Its length varies from five or six inches, to twice as many feet. Men's lower limbs, their feet and legs, are the parts most commonly possessed by this worm; but it occurs also in the parietes of the belly, in the arms, beneath the conjunctiva of the eye, and in almost every superficial situation. It is sometimes solitary; but several may co-exist or succeed each other in the same individual; nine or ten perhaps. A Dr. Marrudri, a friend of the celebrated Clot Bey, had suffered from twenty-eight of them in succession.

This entozoon is epidemic in the hot intertropical regions; in Asia and Africa; upon the coast of *Guinea*, whence its trivial name.

The urinary organs have their parasites also; a species of strongle which sometimes occupies the human kidney, and which is no uncommon tenant of the same organ in various animals; the horse, the bull, the dog, the wolf, the polecat and the otter. In the hu-

man subject, its length varies between five inches and a yard, and it is sometimes half an inch in diameter. There is a specimen nearly of that size in the Hunterian museum. It may well be called the *giant* strongle, *strongulus gigas*. Fancy a creature as big as a snake coiled up in one's kidneys. It gives rise to no distinctive symptoms, although, as you may suppose, it causes much renal distress; hematuria, retention of urine, and great suffering in its passage out of the body, either through the natural urinary channels, or by abscess and ulceration through the back.

Unwholesome food, with a bad digestion, seems to be the principal cause of worms. They appear most frequently in those of a relaxed habit, and whose bowels contain a preternatural quantity of mucus or slimy matter. Hence it is a disease most common to children; but they sometimes prevail in adults to a very high degree, particularly in those who live chiefly on a vegetable diet. The tape-worm is not often met with in infancy or childhood; instances of it do, however, now and then occur.—Some physicians entertain the opinion that intestinal worms do not arise from a weak or impaired digestion, and a consequent combination of matter capable in converting itself into such worms, but that they are introduced into the human body mixed with the food or drink, and find in the intestines an appropriate place for their existence.

Diagnosis.—If attention be paid to the mode in which entozoa are probably formed, and the gradual manner in which they must be developed in the stomach and bowels, it would seem that the parts may be so accustomed to their presence, that they may not, unless when in unusual quantity or of unwonted size, give rise to much irritation, or to symptoms, by which their presence can be diagnosticated. It is, indeed, impossible to pronounce positively as to the existence of worms in the intestines, until we see them in the evacuations. On this point, almost all physicians, at this day, accord: there are still some, however, who place great reliance upon a catenation of symptoms, every one of which may belong to other affections. As the functional disorders induced by worms are identical with those induced by irritation of the intestines, it is impossible, independently of the evidence derived from the presence of worms in the evacuations, to decide whether these disorders are owing to the one or the other. The symptoms are, indeed, so identical with those of gastroenteritis, that the very existence of worms has been ascribed to that affection. "Worms in the bowels," says a well known systematist, "are most fre-

quently, but not always, the product of the alteration of the mucus and heat, which results from a gastroenteritis of greater or less intensity; hence the very various effects of irritating anthelmintics." That they are accompanied with gastroenteritic symptoms, at times, is unquestionable: but the condition—as we shall see—which favors their development, is by no means one of inflammation—in the large majority of cases at least.

There is, indeed, scarcely a symptom referable to the nervous system, or to the great splanchnic cavities, which has not been ascribed to them. Almost all agree, however, that, amongst other matters, the patient complains of a sense of pricking or tearing in the intestines, insatiable hunger, distressing itching of the nose; dilated pupils, etc. etc.; yet there is not one of these symptoms, which does not belong to other affections.

Some have asserted that the intestinal canal is occasionally perforated by them, but if this has ever happened, it is an extremely rare occurrence. More commonly, an ulcerative process has been established in the intestine, through which the worms have passed.

Not many years ago, a *febris verminosa*, or "worm fever," was presumed to exist, in consequence of its having been observed, that, in the remittent fever of children, worms are occasionally discharged; but, without meaning to deny that these parasites may be the causes of constitutional disturbance of the kind in question, the opinion that these fevers are largely connected with a state of the lining membrane of the intestinal canal, is more consistent with correct observation; and, accordingly, it has been positively denied that there is any such disease as worm fever.

It is generally considered sufficient proof, that any disease is occasioned by worms, if they be discharged in its progress. But this is often an erroneous inference. In the disordered condition of the secretions, induced by febrile disease especially, the situation of the entozoa becomes unpleasant to them, owing to the increased heat and modified food; and, accordingly they migrate; yet they may have had no agency whatever in the causation of the febrile affection.

The truth appears to be, that worms may exist in every possible state of the digestive tube, but that they rarely, if ever, accumulate, under such circumstances to be mentioned hereafter. The cause of their undue accumulation, has always, therefore, to be investigated. It is this cause, which must be regarded as the main pathological condition to be combatted. Yet there is no

doubt that the worms themselves may, although much less rarely than is imagined, react on the system, by inducing irritation of the intestinal canal, and sympathetic mischief elsewhere. The copious discharge of entozoa should, consequently, attract attention to the state of the system, which gives occasion to their unusual propagation, and to the rectification of this, otherwise the different vermifuges may be administered in vain.

But although the evidences of worms, in general, must be regarded equivocal, we may judge of the presence of one of them, the oxyuris vermicularis, by the troublesome and almost insupportable itching within the anus, which, in many instances, is experienced more at evening, and during the night, and is caused by the motion of the worms on the sensible extremity of the intestinal mucous membrane. Occasionally, too, as has been remarked, they creep out of the rectum, or induce procidentia ani; and tenesmus is a common concomitant.

Of the presence of the other varieties of entozoa, we have no pathognomonic symptoms. We can only suspect, it is said, the existence of the formidable tænia, "from a sense of gnawing pain in the stomach; give a cathartic and examine the evacuations." Yet no one, from the simple circumstance of a gnawing pain in the stomach, would be led to suspect the presence of this worm, as it may be induced by so many other causes; and a cathartic may afford no positive evidence, even when tænia is really there.

Worms may readily be distinguished by the following symptoms, viz: variable appetite, fetid breath, acid eructations, and pains in the stomach, grinding of the teeth during sleep, picking of the nose, paleness of countenance, hardness and fulness of the belly, slimy stools, with occasional griping pains, more particularly about the navel, heat and itching about the anus, short, dry cough, emaciation of the body, slow fever, with evening exacerbations, and irregular pulse, and sometimes convulsive fits.

When worms exist in the alimentary canal, the symptoms usually are headache, heaviness, giddiness, depression of spirits, and even convulsions. Sometimes the headache is sharp, sometimes it is dull, and frequently there is a stabbing of the temples. Perhaps there is regular epilepsy, and some authors even mention tetanus. There is a black circle around the eyes; paleness of the face; more or less tumidness of the upper lip; foulness of the tongue, thirst; offensiveness of the breath; palpitation; dyspnœa; cough, and even hemoptysis. We have either anorexia, or excessive appetite, nausea, vomiting, a gnawing pain at the "scorbicu-

lus cordis;" pain, perhaps all over the abdomen, or in various parts of it; griping, purging, a discharge of mucous from the rectum, feverishness and emaciation. The pain of the abdomen is sometimes a *pricking* pain, and there may be tenderness of it.—Of course we do not see all these symptoms in every case, and sometimes worms will exist in the alimentary canal, without giving rise to any symptoms whatever.

That a *tape worm* is within, we know when the joints of it are voided. Numberless symptoms have been ascribed to this huge internal parasite. The following are probably the most distinctive: Uneasy feelings in the epigastrium, which often abate or are removed by eating; the appetite generally craving, but sometimes bad; itching of the nose and of the anus; nausea, colic, giddiness, and a sour breath. Less frequently loud borborigmi occur, and sometimes convulsions.

Louis has watched and recorded, with his accustomed minuteness, the symptoms of ten cases in the wards of La Charite. Seven of the patients were males, and three females. The youngest was a boy of twelve, the son of another of the patients; the oldest was seventy-four. Most of them were in comfortable circumstances, and had been habitually well fed. The greater number of them had for some time been passing fragments of tape worm, with their stools, in their clothes and in their beds. In one of the cases the articulations had been twice only detected in the stools, and each time upon the operation of a purgative.

In all the patients but two, the other symptoms commenced when the evacuation of the fragments commenced. This renders it probable that the worms begin to give annoyance when they get into the large intestine. The temporary relief that results from the expulsion of portions of the animal strengthens that supposition. The case is mentioned in the *Medico-Chirurgical Journal*, of a man who was in the habit of freeing himself from large fragments of tape worm by introducing a stick into his rectum, and twisting the worm round till it broke.

The chief symptoms observed in Louis' cases were colicky pains of the abdomen, itching of the anus and of the end of the nose, uneasiness in the epigastrium, and deranged digestion and appetite.

Pain in the abdomen occurred in all the instances, but it differed in different cases, both in degree and in kind. It was intermittent, and mostly felt towards the flanks.

There was itching at the margin of the anus in seven of the

ten cases; itching of the nose in four. With one exception, only, itching was present in one or the other, or in both of these situations.

The appetite was craving in one patient, unaffected in four, variable or bad in all the rest. In all, slight emaciation was observed. In all, the pupil of the eye was of its natural dimensions. This is noticed because dilatation of the pupil has been set down as one of the symptoms of tænia.

Louis thinks that the following combination of symptoms indicates with tolerable certainty the presence of some kind of worm in the intestines. Pain in the belly, colic of various degrees of intensity, unaccompanied by diarrhœa; itching about the anus and at the end of the nose. If pains in the limbs, lassitude, and nervous symptoms exist also, the diagnosis is strengthened.

Treatment.—To remove the *ascaris*, or thread worm, that is so troublesome, we shall find enemas far more successful than medicines by the mouth. To introduce at one end of a tube, several yards long, substances which are intended to act upon animals that live quite at its other end, would be a very roundabout course. Whether a purgative effect, or a specified destructive effect be the object, enemata are far preferable to medicines otherwise given. Bitters offend and destroy these little worms.—We have relieved many patients from their tormentors by prescribing simply the infusion of quassia as an injection. Tobacco clysters are praised, but the remedy is a hazardous one. Dr. Darwell says of an enema composed of half an ounce of the muriated tincture of iron mixed with half a pint of water, "there are few cases so obstinate that this will not suffice to overcome." Lime-water, injected into the rectum, forms another effectual remedy for ascarides, and (as pharmacologists love to speak,) a rather *elegant* one.

Thread worms may be scooped out of the rectum with the finger. Old women fish for them with a piece of fat meat, or a candle, wherewith the entangled worms are drawn out of the bowel. Perhaps, in troublesome cases, the plan laid down by Martinet is as good as any. He recommends three successive injections: the first merely purgative, the second specific (common salt in solution, cold vinegar and water, lime-water, some bitter infusion); the third, oleaginous and soothing. Oil often allays the itching. This teazing symptom may sometimes be quieted by applying a towel, wetted with cold water, to the fundament while in bed.

With some means of this kind for expelling the worms, appropriate measures should be combined for improving the general health.

The spirits of turpentine is not only a very common, but really one of our best remedies, and for the seat worms, it should be given by injection. From a drachm to half an ounce mixed with gruel may be given to a child, and it will bring away thousands. A free use of mucilages, like slippery elm and flax seed, will prevent any unpleasant effects upon the urinary organs.

To expel the tænia, or tape worm, we may give the patient from half ounce to three ounces. In females, half an ounce is generally a proper dose to begin with and increase it. In strong males, two ounces and repeated, may be necessary. It had better be taken on an empty stomach.

The "dolichos pruriens" ("cowhage" or "cowitch") has been used, particularly against the lumbrici; and the best account we can give of that remedy, is to be found in a work, written some years ago, by a general practitioner of the name of Chamberlain. The hairs, or small spiculæ of the dolichos, are scraped off, and made into an electuary with treacle, or confection of senna; and the electuary may be given in almost any quantity. As good a mode of exhibiting it as can be adopted, is to thicken it to a proper consistency with molasses and to let the patient take a teaspoonful of it, two or three times a day. We should occasionally give a purgative. The only inconvenience which my patient experienced, was a tingling in the month; but when it had once got into the alimentary canal, no further unpleasant symptoms arose.

The bark of pomegranate root has also been particularly recommended. Half a drachm may be given every half hour, till vertigo is produced. A good account of this is given, in the eleventh volume of the "Medico-Chirurgical Transactions." It has the effect of producing giddiness, sickness, pain in the head, and purging. There is no rule for the quantity that will produce these effects; and therefore it is well to give half a drachm of the powdered bark, in some water, every half hour, till the patient begins to feel sickness, or is purged. It is for the tænia that this is particularly recommended; and there can be no doubt of its virtue.

But besides those means which are necessary to expel the worms, it is of the highest importance to restore the health. There can be no doubt that worms derange the health; and if we can get rid of them, health will return. But they are frequently present on account of bad health; and therefore, though it is necessary to

expel them by common purgatives (which often answer very well), we must, at the same time, endeavor (by all the means in our power) to restore the health ; to take care that the patient has wholesome food, and to put the digestive organs into the best possible order. If this be done, worms will frequently disappear, without any other means being employed. Without giving any purgative medicines whatever—without doing any thing to expel or destroy worms, in a great number of cases where children have become their prey, they will spontaneously cease. Children are far more subject of ascarides and lumbrici than adults; and a great number of children have them at a particular time; but as puberty arrives, the constitution is less favorable as a habitation for worms; and they cease spontaneously. Most of us have been freed from worms spontaneously ; although they may have been a great torment to us at the younger period of life.

The following compound will rarely disappoint the expectation of relief, by those who will give it a trial ; indeed the worst forms of the complaint, attended with repeated convulsions have often been known to subside immediately on its administration.

Poplar bark, one pound ; scunk cabbage unicorn and ginger, each one ounce ; butter-nut bark, three ounces ; boil in two gallons of water to two quarts, and add one half gallon of molasses, and one ounce oil of wintergreen, which should first be put to one pint of alcohol. During convulsions, a large tea spoonful of this syrup may be given every ten minutes until relief is obtained.

It may always be given according to the urgency of the symptoms with perfect safety and certainty.

Worm seed as a vermifuge (either the oil or substance) has been long known and extensively used. When these offending animals are situated in the lower part of the intestinal tube; some service may result in repeated injections of composition, cayenne, or No. 6. If this treatment does not prove sufficiently laxative, the bitter root and cayenne, or the butter nut syrup should be advised.

It may be necessary where constitutional debility has existed to give several courses of medicine, followed by the bitter tonics.

"I have had," says Dr. Thomson, "a great deal of experience in what are called worm complaints ; and after having become fully acquainted with the real cause, had no difficulty in curing all that I have undertaken." * * * * * *

"My practice," says he, "has been what I recommend to others to do in cases that are called worm complaints; to give the composition powder, or No. 2, to warm the stomach, a tea of No. 3,

to remove the canker, and the bitters, or either of the articles described under No. 4, to correct the bile. If they are bad, carry them through a course of medicine, and give the bitters.—When there are nervous symptoms, give the nerve powder. Injections should also be frequently given. The butternut syrup is very good. If there should be danger of mortification, make use of No. 6, both in the medicine given and in the injections."

Worms sometimes ascend into the throats of children and choke them. This symptom may readily be removed by giving a little salt and water, and repeating it occasionally will often expel them, and always is a preventive. This will be found a very valuable remedy for different kinds of worms; and, even should none exist, it will cleanse the stomach and bowels, and prove very beneficial. When small worms infect the rectum, a weak infusion of tobacco, used as an injection, will dislodge them; and the above medicine should likewise be given. Salt and water may be injected also.

For worms in children, and for pale, sickly children, the following is a good vermifuge, and also tonic: One pint of black alder berries, one pound of cedar or juniper apples: digest for fourteen days in one quart of alcohol, strain, and add one pint of molasses: dose, for a child one or two years of age, one-teaspoonful three times a day. It is rather a pleasant vermifuge, and tonic. Children love it.

When once the tape worm begins to pass the bowels, care must be taken not to break it off, otherwise it will grow again, as it has this peculiar property. It should be wound around a stick or something else, and very moderate extension made upon it whenever there is a motion of the bowels.

The etherial oil of *male fern* is highly extolled for the removal of tape worm: dose, one drachm twice a day; the second day a powerful cathartic. The lowest diet to be taken.

A merchant in Providence had voided portions of a tape worm for twenty years. He had tried various medicines to no purpose, till he took a strong decoction of sweet fern, (*comptonea asplenifolia*,) taking large quantities daily for several days; then taking a brisk purgative, (*mandrake* is good.) Would not the same plant be good for all kinds of worms.

The following is an excellent vermifuge:

R.—Ol. Ricin, (Castor Oil, - - 2 drachms.
Ol. Chenopod, (Wormseed Oil,) - - 30 drops.
Spt. Turpentine, - - - - 30 drops.
Taken on an empty stomach.

HEPATITIS—INFLAMMATION OF THE LIVER.

Description and Causes.—This is the disease which you meet with in books under the general name of hepatitis; but it is of great importance to distinguish between acute and chronic hepatitis for this reason—acute hepatitis implies something specific, an organic change, the nature of which is well known and accurately defined; but chronic hepatitis implies nothing of this certainty of the nature of organic change, inasmuch as there is no single one of the recognised disorganizations of the liver, which may not, and have not occurred, with chronic hepatitis as an existing cause, or a prominent symptom. When we speak of acute hepatic inflammation we speak of a disease, of which the structural lesions are sufficiently understood; but when we treat of chronic hepatitis, we treat of a disease in which there may be a great variety of organic changes. Chronic irritation of the liver may in one patient be followed by the development of hydatids; in another by cancer, or tubercle; in a third, by hypertrophy of one or both of its elementary tissues; in a fourth, by atrophy; and in a fifth by abscess; so that, under the chronic form of hepatitis, we may have many different lesions comprised. Under the acute form, we have only vascularity, softening, yellow degeneration, and suppuration. These which are the ordinary results of acute hepatic inflammation, are the same as the results of active inflammation or other parenchymatous organs.

Excessive heat unquestionably predisposes to hepatitis; hence it is, that the disease is much more common in the torrid regions of the globe, than in the temperate or frigid. Excessive heat, alone, produces erethism of the mucous membrane of the stomach and intestines—as has been elsewhere remarked—and this erethism is readily propagated to the liver. The mode in which the livers of the geese are enlarged, at Strasburg and Metz, with the view of forming the *patei de foies gras* is illustrative of this subject. They are crammed up to the neck with food, are nailed to a board, and exposed to the heat of a strong fire, until, with the aid of punctures made through the parietes of the abdomen, until the needles penetrate the liver, but more frequently without this last refinement of cruelty, the livers are enlarged to correspond with the desires of the gourmand. The heat is, doubtless, in this case, a predisponent, by enervating the digestive organs, whilst the enormous quantity of aliment excites the stomach and duodenum, and from these the excitement is conveyed to the liver. It

can hence be understood, that in the torrid regions of the globe, repletion of any kind, and especially by stimulating aliments, may be likely to induce the affection under consideration; yet where hepatitis prevails to an unusual degree, local influences must be combined with elevated temperature in the causation.—This is proved by the fact, that the average annual per centage of hepatitis, in the East Indies, is at least treble what it is in the Western hemisphere. It would appear, too, from the statistical report of the British troops in the West Indies, that although the diseases of the liver are by no means so common amongst the troops in that service as amongst those employed in the tropical regions of the Eastern hemisphere, they are nearly three times as prevalent as amongst troops in Great Britain and Ireland, and occasion about five times as high a rate of mortality. Yet, what confirms, again, the influence of locality in addition to elevated temperature, those diseases vary materially in prevalence and severity, at different stations in the West Indies—occasioning, at Grenada, for example, three times as great a mortality as at most of the other islands. In Jamaca, notwithstanding the high degree of atmospheric heat, they are by no means very prevalent or fatal, and many parts of the island are remarkably exempt from them. It would seem, too, from the statistical report, that the mortality in the West Indies, from these diseases, is much less amongst the black than amonst the white troops.

In certain parts of the globe, and especially in the East Indies, the causes are of such universal application, that hepatic disease in animals is by no means unusual. Animals, carried to India from more temperate climes, are peculiarly subject to it, and many of them die. Staff-surgeon Blest informed Dr. Stokes, that he had seen many cases of hepatic abscess in dromedaries and horses under these circumstances.

In temperate climates, the most common causes of acute hepatitis are such as act mechanically on the liver; for example blows on the right hypochrondrium, great efforts to raise heavy weights, falls from a height, and penetrating wounds. The hepatitis, thus induced, is almost invariably fatal. For the reasons before mentioned, it will be readily understood, that any excessive irritation of the stomach and intestines may cause it; hence, it is a result of hypercatharsis, and of gastro-duodenal inflammation, which may be propagated along the biliary ducts, as already remarked, and also—it has been conceived—by the veins, which arise from the stomach and intestines, becoming inflamed, and the inflammation

extending along the vena porta to the liver. Inflammation of the rectum has, in this way, been observed to reach the liver, and to induce numerous abscesses in the viscus.

Like other phlegmasiæ, hepatitis would seem to be induced by irregular exposure to cold; and it is asserted to have succeeded to the repercussion of some cutaneous or other irritation or discharge. Europeans, who have recently arrived in India, are very liable to liver disease from slight exposure to atmospheric vicissitudes, or to the common causes that induce fever in Europe or this country.

Habitual intemperance, or dram-drinking, according to the experience of Mr. Twining, is not as common a cause of hepatitis as has been supposed, and it has been affirmed, that, in our own climes, it produces disease of the stomach more frequently than that of the liver.

The alcohol irritates, and often inflames the lining membrane of the stomach and duodenum, so as to give rise to softening, thickening, and the other results of chronic gastro-enteritis, and the effects of these pathological states are extended along the ducts to the liver, which becomes morbidly implicated. Along with this chain of causation, the alcohol passes readily through the coats of the veins of the portal system, by endosmose; and, before it becomes well mixed with the blood of the vena porta, it is distributed through the liver, whose organic actions cannot fail to be unduly excited, and often perverted under the stimulation. It has been observed, by an excellent writer on the diseases of the liver, that in dram-drinkers, the diseased structure may often be traced from the stomach along the ductus communis choledochus, and that the gall ducts may be so contracted and thickened, that they cannot transmit the bile.

Acute hepatitis is not a disease of infancy. With regard to its comparative frequency in the two sexes, discordance of opinion exists. Whilst some affirm that females are rarely affected by it, others assert, that in Great Britain, women are more liable to diseases of the liver than men, owing, probably, to their sedentary occupations. In India, again, it is affirmed that women are less liable to acute liver disease than men of a corresponding class of society, owing to their more temperate habits of mind, as well as to less exposure to the exciting causes, and more abstemious method of living.

With regard to chronic disease of the liver, we must recollect that the liver, like the kidney, consists of two parts; the one san-

guineous and red; and the other white or yellow—containing bile. They are not divided; but throughout the liver there are two constituent parts, lying in juxta-position. Now sometimes it is only the *red* portion of the liver that is hypertrophied; so that the organ is enlarged and red. Sometimes it is the *biliary* portion—the bile-tubes are all in a state of hypertrophy; and then we have a *pale* liver—a liver enlarged and pale. Sometimes, without being enlarged at all, it will be pale. The *red* part is *atrophied*—the vessels shrink; and the *biliary* part is *hypertrophied;* or, if not hypertrophied, it is *indurated*; or, if not indurated, it remains as it was; but as it has a preponderance over the *red* portion, the liver looks *pale*. These changes sometimes occur throughout the liver, and sometimes only in spots; so that here and there one portion of the liver is firmer and redder than it should be; while, perhaps, in other instances, the *biliary* portion is hypertrophied here and there—giving it a mottled appearance.

Sometimes the hypertrophied portion of the liver has the appearance of white lines running along it; and sometimes of granules—varying in size from that of pins' heads, to that of hazle-nuts. There is a difference of opinion, among morbid anatomists, with regard to this affection; which has been called "gin-liver," and which is the most common of all organic diseases of the liver. Dr. Baillie and others, supposed it was caused by minute yellow tubercles throughout the liver; and Andral imagines that it is a mere hypertrophy of the biliary portion. Cruveilhier has given a good delineation of this disease; and has called it "small, brown tubercle," as it is a *gin*-liver" in this country, it is a "*brandy*-liver" in others. Perhaps "*alcohol*-liver" would be the best name. It occurs in spirit-drinkers in *one* country, just the same as in *another*. There is the same punishment for them all. The constant use of alcohol, induces a chronic change of the biliary portion of the liver—causes it to become hypertrophied, and indurated—just as any serous membrane will become (from other circumstances) indurated, opaque, and hard. This is the history of this particular matter.

Sometimes this morbid change occurs more in one lobe than in another. Sometimes the liver is increased altogether; and sometimes, instead of being increased, it is shrunk. The liver generally feels very hard on the external surface. Frequently it is indurated in particular portions; but wasted on the whole. In by far the greater number of cases, a "gin-liver" is of a bright yellow color; and generally there is more or less ascites. The pe-

ritonæum over the liver is generally more or less diseased. It is particularly opaque and hard.

Perhaps the disease to which the liver is most liable, is that of becoming fatty. The liver is sometimes exceedingly fat. We know that the liver naturally contains fat and cholesterine; and these matters will sometimes exist in a great degree. When the liver has degenerated into this fatty state, instead of being indurated, it is usually soft and flabby. Sometimes it is grayish or whitish; and such is the quantity of fat deposited, that on cutting or handling it, our fingers become greasy; and in those parts which are the most fatty, it appears as if there were no blood at all. This disease, like every other, will affect either the whole liver, or only portions of it. This state is frequently united with phthisis. It is a disease seen continually—without the person having been addicted to drinking, or having imbibed any bad habits. It frequently occurs in young persons.

The liver is also subject to encephaloid disease—to what is called "fungus hæmatodes." This is much more rare than either of the other forms of disease to which we have adverted; but when fungus hæmatodes has existed in the extremities, then it is very common for a collection of this nature to take place in the liver, without the disease occurring in other parts; but more frequently they are found in combination with disease of the extremities. These tumors are, of course, white; and sometimes there are tuberæ, producing an elevation on the external surface—bumps. They are of various sizes—some existing near to the surface, and some towards the centre of the organ; and, when cut, are found to contain a brain-like substance.

The liver is also subject to another disease, to a new formation, viz: *scrofula*. Scrofulous tumours take place, from time to time, in the liver, and they are, of course, white. The encephaloid tumors look exactly like them. Cruvilhier has given some good representations of them. The scrofulous disease is sometimes mixed with encephaloid matter, with brain-like substance, and sometimes there will be a mixture of scirrhus with it.

Worms have sometimes been found in the human liver, and a lumbricus has been found in the ducts; but we should rather think it was not a native, but a wanderer that, being on its travels from the intestines, lost its way.

Diagnosis.—The acute species of hepatitis comes on with a sense of chilliness preceding pain in the right hypochondrium, sometimes dull, sometimes sharp, extending up to the clavicle and

shoulder of that side, most usually, which is much increased by pressing upon the part, and is accompanied with a cough, oppression of breathing, and difficulty of lying, except on the side affected; together with nausea and sickness, and often with a vomiting of bilious matter; the intestines are generally inactive, and the stools show a deficiency of biliary secretion, or at least of any intermixture of it with them; the urine is of a deep saffron color, and small in quantity; there is a loss of appetite, great thirst and costivness, with a strong, hard, and frequent pulse, of from 90 to 100 in a minute, and sometimes intermitting; the skin is hot and dry at the same time, and the tongue covered with a white, and sometimes a yellowish fur; and when the disease has continued for some days, the skin and eyes become tinged of a deep yellow, particularly when the inflammation is produced by calculi in the parenchyma of the liver.

In hepatitis, as well as in other diseases, we do not always find the symptoms of the same degree of violence as they are described in the definition; thus in some cases the fever is severe, in others it is scarcely perceptible; in some instances the pain is very acute and violent; in others, collections of puss have been found after death, when no pain has been felt. When the pain is seated deep in the substance of the liver, as that possesses little sensibility, the pain is usually obtuse; but when the surface is affected, it is acute, and apt to spread to the diaphragm and lungs, producing cough.

Both ancient and modern nosologists have made a distinction between the symptoms that occur when the inflammation occupies the convex surface of the liver, and those that are present when the disease affects the concave. It is said, when great difficulty of breathing and cough accompany the pain in the region of the liver, that these symptoms indicate the inflammation to be seated in the superior or convex part; but where the inflammation occupies the concave or inferior surface, which lies contiguous to the stomach and duodenum, there is more sickness and vomiting; and, moreover, the pain is not so violent in the region of the organ as in the other instance.

It seems probable, says Dr. Cullen, that acute hepatitis is always an affection of the external membrane of the liver, and that the parenchymatic is of the chronic kind.

The chronic species is usually accompanied with a morbid complexion, loss of appetite and flesh, lowness of spirits and despondency of mind, headache, or giddiness, general weakness, a

morbid sensibility of the nervous system, costiveness, indigestion, flatulency, acidity, and pains in the stomach, a yellow tinge of the skin and eyes, clay-colored stools, high-colored urine depositing a red sediment and ropy mucus; an obtuse pain in the region of the liver, extending to the shoulder, together with a sense of weight, unusual fulness, and some enlargement and hardness of the organ, and not unfrequently with a slight difficulty of breathing or dyspnœa. In some cases of chronic inflammation of the liver the pulse has been observed to intermit; and probably induced either by the blood through the hepatic artery being obstructed by the scirrhosity, by an accumulation of it in the branches of the vena portarum, or by bile in the hepatic ducts.

The symptoms are, however, often so mild and insignificant as to pass almost unnoticed, as large abscesses have been found in the liver upon dissection, which in the person's lifetime had created little or no inconvenience, and which we may presume to have been occasioned by some previous inflammation.

We may readily distinguish hepatitis from pneumonia by the pain in the former extending into the shoulder; by the sallowness of the countenance; by the cough being unaccompanied by expectoration, and by the less degree of dyspnœa. The heat and pain not being increased upon taking any thing into the stomach, its being able to retain whatever liquids or medicines are received into it, without the immediate rejection of them, and the less prostration of strength, will distinguish it from gastritis. Hepatitis may be discerned from spasm on the gall-ducts, by there being no nausea, by the pain being permanent, by the pulse being 100 and upwards in a minute, and by the patient always preferring to keep the body in a straight, quiescent posture; whereas the greatest ease, when there is spasm on the gall-ducts, is obtained by bending the body forward on the knees.

Hepatitis, like other inflammations, may end in resolution, suppuration, gangrene, or scirrhus, in which the liver becomes swelled and hard; but its termination in gangrene is a rare occurrence. It is frequently accompanied with chronic obstruction. Its tendency to run into suppuration is not so great in this country as in warm climates. Indeed it is a rare occurrence here. The period of suppuration is influenced by the degree of inflammation, the season of the year, climate, and the remedies that have been employed. Scirrhus may exist in the liver without previous active inflammation, as in those who have long resided in the East or West Indies. Indeed, a scirrhosity of the liver most generally arises from this cause, and by an abuse of ardent spirits.

The disease is seldom attended with fatal consequences of an immediate nature, and is sometimes carried off by a hæmorrhage from the nose or hæmorrhoidal vessels, and likewise by sweating, by a diarrhœa, or by an evacuation of urine depositing a copious sediment. In a few instances it has been observed to cease on the appearance of erysipelas in some external part. Serous effusion in the cavity of the abdomen is sometimes a consequence of hepatitis showing itself under the form of ascites.

The symptoms of chronic hepatitis are various, but at the same time in many cases so obscure, that, while persons have been suspected of it whose livers were perfectly sound, others have died, in whom the disease had remained unsuspected during life. The characteristic symptoms of the disease are, a sense of weight, or a dull, numb pain in the right side or back, pain at the point of the shoulder, or a sense of heaviness or weariness in the right arm, a sallow countenance, and yellow tinge of the conjunctiva. In some cases, the enlarged liver can be distinctly felt under the finger. The pulse varies in point of frequency, but is feeble and often intermitting; the tongue is permanently loaded, and the appetite impaired. The urine frequently deposits a pink sediment. Venous hæmorrhages take place from the stomach and intestines, referable probably to the difficulty which the blood finds in passing through the vena portæ. For the same reason the external veins of the abdomen appear swollen. Pimples break out on the nose and forehead, and the face acquires a bloated appearance. Extreme languor, dejection of spirits, and sleeplessness are often noticed. Dyspepsia and atrophy are also prominent symptoms.

The observations already made on the causes of acute hepatitis apply equally to this form of the affection. It is sometimes the *result* of acute inflammation, but it sometimes also precedes that state of disease. Enlargements of the liver have been the consequence of long continued intermittents. Chronic hepatitis may last a long time; but in most cases it sooner or later ends in dropsy, which proves fatal. The prognosis, therefore should always be guarded, particularly in elderly subjects. The probability of success in the treatment of the disease will depend partly on the state of the constitution, and partly on the extent of morbid alteration which the *structure* of the liver has undergone.

Treatment.—This is a form of disease where the Sampson of Allopathy, Calomel, has been considered as indispensable, and although a powerful irritant to the Liver, yet it has been recommended both for acute and chronic hepatitis. We are happy to

inform our readers that in the Podophillin and the Apocynum, (Mandrake and Bitter Root) we have as specific agents, as they have in Calomel, and yet without the evils and damages of that poison.

Diaphoretics should certainly form a part of the curative process, and they combine admirably with the principal part of our alteratives. Ascidulated drinks should be taken in small quantities, and the diet to consist chiefly of light, farinacious food, with the chamber well ventilated.

If from sudden shiverings and remission of the quickened pulse, we have reason to believe suppuration has taken place, the very bestplan which can be pursued is, to have the patient make use of columbo, goldenseal, poplar bark equal parts, and a half part of seed of lobelia every four hours; this should be given freely whether the abscess be likely to burst externally or not; if the former the direction should be encouraged by common Thomsonian poultices, liniments, etc., and the abscess be opened as speedily as possible. However, it is not always attended with bad consequences, if it is neglected, but from the fact that a very great amount of pain may be obviated, as well as danger, we certainly should recommend the opening of them in all cases.

The bowels in this form of disease are generally costive and the stools often of a clay color, though not always. In costiveness the bitter root must be used. "This root," says Dr. Thomson, "is very bitter, and is one of the greatest correctors of the bile I know of, and is an excellent medicine to remove costiveness, as it will cause the bowels to move in a natural manner." The manner of using it, is half a tea-spoonful of the pulverized root in cold water, conjoined with a small quantity of cayenne to make it somewhat active.

In all cases where the liver is torpid, debilitated and irritable, the cure must depend upon our ability to give it fresh tone and vigor. A pill made after the following formula is favorably recommended in this complaint. Equal parts of golden seal, columbo, bitter root, cayenne and lobelia seed, prepared by mixing the whole with a sufficient quantity of slippery elm, to be taken three times a day, and particularly on going to bed. The tincture of the extract of dandelion, will be found often highly serviceable. The above treatment must be continued as long as there is pain, bearing in mind that the patient is not always cured when the pain ceases to be felt; the deceitful remissions which sometimes occur in the progress of the cure must not throw the practitioner off his

guard, but on the first return of it the same remedies must be again resorted to.

When assistance has not been procured in due time, or the means which have been empolyed to carry off the inflammation in the liver have not been attended with desired effect, and a suppuration has ensued, we must endeavor to promote the formation of proper pus, and the discharge of the abscess externally.

To effect this intention, the patient should be put upon the best tonic courses, using at the same time a generous nutritive diet with a moderate quantity of wine, which course ought to be continued until the suppuration is completed; and to promote the second intention, a large emollient poultice should be kept constantly over the part, well fomenting it twice a day, previous to the application thereof, or the local bath might be of still greater service. When the tumor points outwardly, and has become somewhat soft, with evident fluctuation, we should immediately open it in the most dependent part, taking care not to touch its adhesion with the corresponding portion of the peritoneum. The opening may be made through the internal integuments with a scalpel, and on reaching the abscess it may either be touched with a lancet, or be pierced with a trocar, which ever may be the preferable way, as we shall thereby have it in our power to evacuate the matter slowly and gradually, which, in large collections, is a point of importance, and therefore deserving of attention. The fluid discharged is most commonly of a grayish color, but not invariably so. To facilitate the discharge of the matter, the patient ought to be placed in the most favorable position, and the belly be gradually compressed by means of a proper bandage. The dressings ought to be simple and frequently renewed. Should the lips of the wound, after some days, seem disposed to close before the healing of the interior parts, a tent of soft lint, dipped in some digestive ointment, may be inserted into them. To the end of the cure, cinchona stomachic bitters, wine and a generous diet, will be proper.—Suppuration of the liver is a disease of such frequent occurrence in the East Indies and other warm climates, that the practitioners there are become very expert at this operation, and frequently perform it with safety when the tumor does not appear at all, judging merely by the preceding progress of the case, and the degree of fulness in the hypochondrium.

Abscesses in the liver sooner heal when opened than similar affections in other parts of the body, and perhaps with less inconvenience; and, therefore, whenever we have good grounds for sus-

pecting that matter has formed in this viscus, we may advise an opening to be made into the abscess, whether situated on the convex part of it or not, in preference to suffering it to break internally, by which its contents must be evacuated into the abdomen, to the almost certain destruction of the patient.

Moderate exercise, in the open air, on horseback and on foot, should be encouraged. There is no doubt, that heptatic as well as gastric derangements are fostered by sedentary habits. Tepid bathing is another expedient from which benefit may be hoped.

Liver complaints are often obstinate to cure, and sometimes, indeed, are quite beyond the reach of medicine. The chronic form, especially, is frequently so insidious in its attacks, that it is very often suffered to go on for years before any serious attempts are made to check its progress; when it is, in many instances, too late to do any thing more than palliate the symptoms, and make the patient a little more comfortable.

In cases of inflammation of the liver, the cure may be commenced by giving three or four carthartic pills, which should be followed by occasional doses of cayenne; and if there be severe pain in the side, it should be bathed with the bathing drops, or some stimulating wash, and have a hot brick or stone applied to it. During the operation of the pills, the strength of the patient should be supported by milk porridge, broth or gruel; after it is over, the bitter tonic, with additional doses of capsicum, ought to be freely used.

If the complaint be of the chronic kind, the principal dependence to effect a cure, should be placed in the cathartic pills, given two or three times a week, with the laxative bitter tonic several times a day, to keep the bowels loose and strengthen the digestive powers. A strengthening plaster applied to the region of the liver, will also be found beneficial. We ought, however, to administer a course of medicine after the operation of the first dose of pills, and repeat it once or twice a week afterwards. To strengthen the nervous system, the nervine powder or its tincture should be taken in such quantity, and at such times, as the circumstances of the case may require.

For a torpid liver, the following formula will be found beneficial:

Podophillin,	grs. 2.
Leptandrin,	" 4.
Cayenne,	" 1.

Made in two pills, or taken with a teaspoonful of syrup. If

this dose should be too active, let but one of the pills be taken, or one half administered, and if it should not be found sufficiently active, let the dose be increased, and the bowels kept gently acted on by this remedy.

The patient must drink freely of *balm* or *pennyroyal tea.*— Let fomentations be applied warm to the side or over the region of the liver. Should they not take off the tension and afford relief, apply *cayenne pepper* and brandy simmered a few minutes together. These may be applied often, and as warm as the person can bear. A purgative may be given daily while the acute symptoms continue. In this disease vomiting is a very common symptom; to allay which, give a little supercarbonate of potash, or salæratus, in peppermint water or tea, as often as the vomiting returns. This will allay the irritability of the stomach. Should not these applications mitigate the symptoms, apply the following plaster to the side: Take cayenne pepper, Indian meal, a tablespoonful; vinegar sufficient to form a plaster or poultice of suitable consistence. Apply warm to the side, and continue it as long as the patient can bear. If the pain continues severe and prevents sleep, ten grains of the *diaphoretic powders* may be given in *currant jelly*, roasted apple, or any other convenient vehicle, every two hours until relief is afforded. Or if there is much nausea, give a full Lobelia emetic.

The most efficient means to remove obstructions of the liver, in general, are the application of the vapor bath, followed by a prompt emetic. Cases of very stubborn character have been cured by continued vomiting from sea-sickness, the patient being in a relaxed condition, similar to that produced by the influence of Lobelia upon the system. In cases of long standing, however, and when the disease is associated with old age or an exhausted constitution, the frequent repetition of a course of medicine might be harrassing to the patient, and fail to effect a cure. A change of organization in the liver having taken place, as it sometime happens when the disease has been long-continued, a palliation of the symptoms is all that can be reasonably looked for from medicine—as a radical cure, under such circumstances, is rarely to be accomplished.

The function of the liver may be influenced to a greater or less degree by means of medicine administered to the bowels. Hence injections will be useful, not only to relieve the bowels, but when properly prepared, to exert a beneficial influence on the liver.— Lobelia administered in this way, and retained, diffuses its influ-

ence throughout the whole system, and at the same time that it occasions relaxation of the organs, it tends to restore their proper functions. Again, injections are useful to cleanse the bowels of morbid secretions, which they are more or less coated with, in nearly, if not in all cases of seated disease. The morbid secretions alluded to, usually pass off in the form of flakes, and sometimes in pieces, from a few inches to a foot, or even a yard in length, having somewhat the appearance of an intestine. Patients not aware of the frequency of its occurrence, sometimes become alarmed at the passage of this kind of substance from the bowels. There are, however, few if any recoveries from seated disease, in which there has not been more or less of this mormid secretion passed from the bowels.

ICTERUS—JAUNDICE.

Description and Causes.—This disease, in common language, is called "jaundice"—a term which is derived from the French word "*jaune*" (yellow.)

In brutes it is called "the *yellows*." In medical language it is called "icterus;" which is said to be the name of the golden thrush; and by looking at that bird, like the Israelites looking to the brazen serpent in the wilderness, it was thought those that had the disease would be cured. The thrush, it was said, would die. In ancient nations, the cure of disease was often attempted by looking on certain things; it had its origin from what occurred to the Israelites. In Latin, jaundice is termed "morbus *regius*"—"the *royal* disease;" and the reason given by several writers is, that in this affection persons require many kinds of amusements, that none but kings or royal persons can command. It is also called, in Latin authors, "morbus *arquatus*;" from the patient having the various hues of the rainbow ("arcus.") It is also mentioned under another name—"*aurigo*," this has its originfrom "aurum" ("gold.") The word "*jaundice*" is simple, and a very fine name for "yellow."

Some people would appear to have a constant predisposition to this disease; and it may be hereditary. Persons who have been in warm climates, are much more predisposed to the disease than others.

The *exciting* causes of it, are any circumstances that will pro-

duce inflammation and congestion of the liver. Whatever will produce hepatitis, or cause great congestion of the liver, will produce jaundice. It may arise, not only from cold and wet, and from long-continued heat, but also from the suppression of a discharge; by which a congestion of the liver will be produced. It will arise from anything that causes an excess of bile; for occasionally the fæces, in this disease, are not white. Bile passes into the intestines; but so much is secreted, that all does not escape; and a portion goes into the blood. Malaria seems to have a tendency to produce it in hot climates, and in the hot seasons of other climates. Persons exposed to the influence of the malaria, are very subject to have more or less jaundice among them, as well as other hepatic affections.

It may be produced by a variety of *local* causes—anything which will cause pressure upon the parts through which the bile is conveyed. Mere costiveness has been known to give rise to it.—Tumors occasioned by an enlarged pylorus, or by an enlarged head of the pancreas—tumors of the omentum—diseases of the liver—the lodgment of a calculus in the ducts, are also common causes of this disease. If a portion of the liver becomes harder than it should be, and perhaps rather enlarged, the bile may be obstructed in the liver itself. Sometimes pregnancy causes it. We have frequently seen jaundice in pregnancy—not, however, as the result of pregnancy; but as the result of inflammation of the liver; and which disappeared under the treatment for common inflammation, while the pregnancy went on. It is supposed to be occasionally produced by thick bile; if there be any obstruction to the bile, its fluid parts may be absorbed, and it will thus become inspissated; but there is no proof that this is the *cause* rather than the *effect* of the jaundice. It has been known to be caused by a lumbricus sticking in the duct of the liver. We mentioned, when speaking of worms in the liver, that a lumbricus has occasionally (as was supposed) lost its way, and wandered into the liver; and if it stick there, it may cause jaundice. If the ducts themselves become thickened by chronic inflammation—if they become hypertrophied, their canal may be so much diminished, that the bile cannot easily pass; and consequently we have jaundice. Sometimes the ducts are impervious from original malformation. There are a few instances of this upon record. It would appear sometimes to be produced by spasm. Some persons, on eating certain articles, are seized with violent pain at the pit of the stomach, and the next day an attack of jaundice has appeared. It has been produced by men-

tal causes. Many persons have become yellow from fright. We believe that, in general, people from fright look *blue;* but sometimes, from being exceedingly frightened, persons will have a fit of jaundice. Occasionally the disease has arisen, not from terror, but from long-continued grief and anxiety of mind.

We may produce this disease artificially, by opening the abdomen, and passing a ligature around the intestines, a little below the ductus communis choledochus. Portal has done this (he says) in six dogs; and they all became jaundiced. If we tie the lymphatic duct, the same circumstances will occur; and the absorbents of the liver have been seen, after such an experiment, to become loaded with bile. It has been said, however, that the blood from the lymphatic veins was found, in such an experiment, to stain paper yellow—much more so than the blood from the choledochus.

Gall-stones are found in the ducts of the liver itself; they are also found in the gall-bladder, in the cystic duct, and in the ductus communis choledochus. If they exist in the cystic duct, of course they will not produce jaundice, unless they happen to be so large as to press upon the ductus choledochus, or the hepatic duct; but though they will not produce jaundice, yet they will obstruct the course of the fluid from the gall-bladder; and it will become distended, to a great amount, by its own secretion. There must be obstruction in some of the ducts of the liver, in order to produce jaundice; but gall-stones are found in all parts of the organ.

These calculi are most frequently found in the gall-bladder itself; next to that, in the ductus choledochus; and next to that, in the hepatic duct. There can be no doubt, therefore, that they are generally formed in the gall-bladder itself.

The *quantity* of stones found will vary, from one to an immense number. It is said by Dr. Baillie, that a thousand have been found at once in the gall-bladder. The preparation is now to be seen in Dr. Hunters collection. An incision is made into the bladder, to show that it is crammed full of stones. Dr. Baillie has given a representation of the case.

These biliary calculi are sometimes rough, and sometimes smooth. They acquire a smooth surface from lying and rubbing against each other; but this very same circumstance causes them to be angular. They have a sharp corner and edges; although the surface between the angles may be perfectly smooth. Those in the centre are generally oval.

Some of them are white, and others are black; some are black externally, and white internally; and some have a shining and semi-transparent fracture.

Gall-stones are seen of all sizes—from mere grit, to the size of the gall-bladder itself. They will very often pass without pain. If they are very large, they will occasionally produce no pain—provided they lie still, and do not attempt to escape; but if nature make an attempt to get rid of them, the pain is very considerable. Dr. Heberden mentions, that in the gall-bladder of Lord Bath, (preceptor to George the Third,) there was found a stone which weighed two drachms; and yet that it caused no symptoms. They were surprised to find the stone there. Dr. Baillie says that he saw one the size of a hen's egg.

They will pass through the ducts even when very large; for the ducts will dilate incredibly. We know that the female urethra may be dilated to so great an extent, that a large stone may be extracted from the bladder without an incision. A very large calculus has been known to pass through the ductus communis choledochus, without ulceration having being discovered after death.—Dr. Heberden, states, that once the ductus communis was distended to an inch in diameter; but not unfrequently, when the stones are large, they will escape by an abscess—just as pus will do from the liver—either externally or internally. Adhesions may take place externally, between the gall-bladder and the parietal peritonæum. An abscess forms; and the stone comes out through the abdominal parietes. But, more frequently, adhesions take place between the bile-passages and the intestines; into which the stones escape, and are discharged by stool.

It is astonishing how very large a calculus nature will get rid of, and yet the patient do well. A calculus two inches and a quarter in length, three and a quarter in circumference, and weighing an ounce, two drachms, twenty-three grains, was discharged from a person who lived after it, and did perfectly well. Dr. Pemberton states that a stone has been discharged, two inches and a quarter in length, and one inch and a quarter in breadth. In the "Medical Gazette" for March 1, 1828, there is an account of a stone an inch and three quarters in length, three inches and a quarter in breadth, and weighing two hundred and seventy-eight grains. A stone measuring an inch and three-eights in length, and three inches and three-eights in transverse circumference, is mentioned in the twelfth volume of the "Medico-Chirurgical Transactions," (Page 255.) It had passed by ulceration; but the individ-

ual died. There is a curious instance of one an inch and six-tenths in length, and an inch and one-tenth in breadth, which was expelled, and the patient recovered. As it went down the intestinal canal, it struck in the sigmoid flexure of the colon; and there gave all the signs of strangulated hernia—so that, before its escape from the intestines, it did serious mischief. Yet there had been no suffering previously. It was not known that the cause of the disease was a stone.

Some of these stones appear to be nothing more than inspissated bile; and these are bitter to the taste, soluble in water, and burn to a cinder. But the greater part of the biliary calculi are not of this description. They are of an oleaginous character; and, if melted, will take fire, and burn like wax. The shortest way to ascertain their nature, is to scrape them a little; and they very soon melt. Some are resin, some are cholesterine, and some are picromel.

Diagnosis.—Usually, before an attack of jaundice, the gastro-intestinal functions are more or less disordered. The patient complains of loss of appetite and dyspepsia, with vertigo, nausea, and perhaps vomiting, flatulence and tension in the epigastric and hypochondriac regions, with furred and yellow tongue. Usually, too, there is more or less lassitude and dejection of spirits. After these symptoms have continued for a longer or shorter period, the eyes are observed to be yellow, as well as the skin; the urine may be hot, is very high colored, sometimes of a green hue, turbid, and tinging the linen; and the alvine evacuations are clay-colored; although this last symptom may not be very evident. Commonly, the bowels are confined; and, often, there is morbid sensibility when pressure is made over the region of the gall-bladder and capsule of Glisson; but in the absence of pressure, the uneasiness is generally referred to the epigastrium. This tenderness on pressure is considered to be owing to inflammation of the upper part of the digestive tube, which has been esteemed an extremely frequent cause of jaundice, and is, generally speaking, independent of any mechanical obstruction of the gall-bladder or biliary ducts. Taking all the cases into account, this form of jaundice has been regarded as the most frequent.

In the mildest forms, the pulse is but little affected, but where it is owing to, or connected with, inflammation of the liver, or of the lining membrane of the stomach and bowels, the circulation is quickened. In very bad cases, the brain is more or less affected, and, as has been properly remarked, the supervention of

symptoms denoting an affection of the nervous system, must be looked upon with alarm in any form of the disease. A most alarming complication is coma. Robust patients have been known to die with symptoms of oppressed brain, within thirty-six hours after the sudden appearance of intense jaundice. Many cases have been detailed, which were complicated with this formidable symptom, the majority of which resisted all the ordinary resources of art, and Dr. Stokes affirms that he has never seen a case in which the coma was distinctly established, terminate favorably.

It is proper to remark, that the color of the skin is not always the same; it may vary from a citron almost to a black, whence the name "black jaundice," applied to it in some cases. Usually, too, before the coloration appears, there is a disagreeable itching or tingling of the whole surface, which may continue for some days, as long, indeed, as the morbid condition of the blood.

The attacks of jaundice sometimes come on insidiously; at others, especially when the disease originates from a moral cause, it may appear almost instantaneously. A case is related of a man who sat down to dinner in tolerably good health, but was soon compelled to retire, owing to his feeling indisposed, his whole surface being suddenly tinged. The first circumstance that excited attention to him was a remark which fell from himself, that the tablecloth was of a greenish color. It is said that Murat, on learning that his queen had assumed the sovereign power at Naples, in his absence, fell into a violent rage, and was almost instantaneously jaundiced.

In referring to the case cited above, Dr. Mackintosh states, that he has known several individuals affected with jaundice, who saw every object colored. It is strange that this *chromatism*, as it may be termed, should exist in a very few cases only. Most of the secretions are unquestionably tinged yellow, but not all. The coloring matter of the bile is rarely found in mucus or milk, for example. The yellowness of the conjunctiva is, however, one of the pathognomonic symptoms. Bile is also necessarily present in the blood-vessels of the retina; yet yellow vision is not often seen. In the experience of one observer, it was observed but five times in about a thousand cases. The cause of the phenomenon, when it does present itself, has been a question. It has been supposed to be owing to inflammation of the cornea, the vessels of which become dilated, and receive yellow blood, but strict observation has not always exhibited such a pathological state. The most probable supposition seems to be, that the humors themselves are

tinged yellow; and it has been suggested, that where vision is not yellow, they may have escaped the tinge. As, however, the phenomenon is observed in very few cases only, the coloration of the humors must be an uncommon occurrence, provided the fact and the explanation be true—yellow vision, in other words, must be an exception to the general rule in this disease. Lastly, the phenomenon has been ascribed to direct nervous influence, on the ground that patients, in other diseases, as in typhus fever, without being in the slightest degree jaundiced, have seen every thing yellow. It is possible that all these conditions may be, occasionally, concerned in the causation.

Commonly, the disease is tedious; its duration varying from one week to three, four, five, or even longer. As a general rule, too, when uncomplicated, it terminates in health, but where the liver is diseased, or the encephalic complications, before described, supervene, the result may be fatal. Occasionally, the indisposition is so trifling, that the patient attends to his business as usual; and a writer states, that he has seen persons who labored under this affection for more than a year, and yet who had, during the whole of that time, the digestion good, the bowels regular, the flow of urine natural, and the circulatory, nervous and respiratory systems apparently conformable to the healthy standard.

Treatment.—Where jaundice is recent, and occasioned by concretions obstructing the biliary ducts, it is probable that by using proper means we may be able to effect a cure; but where it is brought on by tumors of the neighboring parts, or has arisen in consequence of other diseases, attended with symptoms of obstructed viscera, our endeavors, most likely, will not be crowned with success. Arising during a state of pregnancy, it is of little consequence, as it will cease on parturition. A gradual diminution of the sense of weight and oppression about the præcordia, a return of appetite and of the digestive powers, the stools becoming copious and easily procured, the urine being secreted in a larger quantity, and ceasing to tinge linen of a yellowish color, are to be regarded as favourable circumstances. A violent pain in the hypochondrium or epigastrium, attended with a quick pulse, loss of strength and flesh, with anasarcous swellings of the extremities, chilliness, watchfulness, melancholy, or hiccough, denote great danger.

The cure of the disease, unpromising as it may at times appear, is nevertheless to be attempted, first, by restoring the interrupted passage of the bile through the duct; secondly, by carrying it off

by the intestines; and thirdly, by relieving the particular symptoms. Whether the passage of the bile is obstructed by biliary concretions or by spasmodic constriction of the duct, the same plan nearly must be adopted.

Concretions, when of a large size, frequently excite, by their great distension of the biliary duct in their passage through it, not only acute pain, but very often a considerable degree of inflammation likewise. When this is the case, much fever is apt to attend. To guard against such consequences, it will therefore be advisable, in full plethoric habits, where the symptoms run high, to give thorough relaxing courses; and even after their immediate operation, to keep the system under the influence of lobelia, by broken doses, combined with composition.

The protracted use of the vapor baths, will be found highly serviceable. The patient, during the attacks, should be kept in a state of perspiration by the aid of hot rocks, or bottles of hot water, and the sudorific powders.

If there is any possible chance of pushing forward the biliary concretions, it is obtained by this combination of measures.

In many instances it seems probable that there is not much pain produced whilst a calculus of a moderate size is lodged in the gall-bladder, or even in the biliary ducts, until it arrives at that part where the common duct perforates the intestine; which opinion seems confirmed from cases reported by writers of the first respectability, where biliary calculi have been met with on dissection in the gall-bladder of persons who never were incommoded during their life-time with any symptoms that indicated the presence of such a complaint.

Where the disease proceeds either from calculi or from spasmodic stricture, it seems rational to presume, that after having pursued the steps before recommended, we may make use of purgatives with much advantage.

With the intention of dislodging biliary concretions, gentle exercise, but more particularly that of riding on horseback, together with frictions, have been much advised; and certainly will be very proper, except during the paroxysms.

Should we discover that jaundicè has arisen in consequence of an inflammatory affection of the liver, we must, at an early period have recourse to the usual means for carrying it off by resolution, noticed under that head.

The symptoms which usually prove most distressing in this disease are, the pain in the epigastrium, sickness at the stomach, and costiveness.

Costiveness is to be removed by gentle laxatives, such as are here advised.

When the disease is of a chronic nature, and attended with anasarcous swellings, it will be proper to employ diuretics, as recommended under the head of dropsy, strengthening the general system at the time with astringent bitters.

In the progress of the disorder, it sometimes happens that a spontaneous diarrhœa arises, and prevents the future absorption of the bile into the mass of fluids. As long as it continues moderate, and induces no debility, it may be allowed to go on; but where it attacks with violence, or takes place in a constitution much injured and enfeebled, it should be checked by having recourse to the means advised under that particular head.

When a putrid disposition shows itself this must be counteracted by proper antiseptics. In jaundice arising from a scirrhosity of the liver, we must adopt the steps recommended in chronic hepatitis.

In cases where we have reason to suspect the obstruction of the bile to be owing to a torpid action of the bile duct, relief will almost always be obtained by two or three courses of medicine, given in quick succession, with the proper consecutive treatment. The following pill has proved very advantageous:

The extract of dandelion one third, the other two thirds, equal parts, of lobelia seeds, cayenne, bitter root, and goldenseal—two to be taken three times a day.

Or, take of barberry, xantoxylum, goldenseal, bitter root, poplar and wild cherry tree bark, each one half ounce—steep the whole in one quart of water, and add one pint of Holland gin.—From a half to a full wine glass may be taken three times a day.

Dr. Prout states that he has seen more alleviation afforded by large draughts of hot water, containing the carbonate of soda in solution (one or two drachms to the pint,) than by any other means. "The alkali counteracts the distressing symptoms produced by the acidity of the stomach; while the hot water acts like a fomentation to the seat of the pain. The first portions of water are commonly rejected almost immediately; but others may be repeatedly taken; and after some time it will usually be found that the pain becomes less, and the water is retained. Another advantage of this plan of treatment is, that the water abates the severity of the retching, which is usually most severe and dangerous where there is nothing present upon which the stomach can react.

In the spasmodic form of this disease, we must use our anti-

spasmodics freely, both by enemas as well as by the mouth; we are also to apply constantly the bitter herb fomentations to the side and stimulating liniments very often.

But the disease sometimes lasts a long time—becomes *chronic;* and it is necessary, after we find no more pain—no tenderness on pressure, to make the patient take free exercise, to have the parts well rubbed, to recommend the use of the warm bath, to exhibit tonics—for a greater or shorter length of time—and to make a free use of purgatives. When the disease becomes chronic, it will frequently go away under the use of these means. The parts seem to fall into an atonic state. Supposing that the affection continues in spite of all these means, then we generally have reason to suspect that there is disease of the liver. If there is induration or enlargement of the organ, or a degree of ascites, or any kind of dropsy; if persons waste more and more, and especially if the tinge becomes green, after having been the plain ordinary yellow—then we must form an unfavorable prognosis, and suspect disease of the liver. In the case of enlargement and induration, it is pretty well proved; and then the remedies for diseased liver should be employed, and we must keep up the patient's strength as much as possible.

With respect to this chronic jaundice, Van Swieten records a curious case; which was cured by making a man imitate Nebuchadnezzar. Van Swieten says that he persuaded a poor man, in an obstinate case of jaundice, to live upon grass for two years, except during that part of the winter when there was none to be got. He made him eat the tenderest grass, and also that which was first mowed; and he made him take that which was in flower. The man "confessed that, for some time, this diet did but little please him; but after a time he was well contented, and could easily distinguish the best pastures by the flower of the grass." At last he became a general nuisance to the farmers; for Van Swieten says that he was obliged to eat his diet secretly; and that the farmers, finding he had so large an appetite, often gave him a quick repulse. The man, however, was perfectly cured.

If the stomach is much disordered, which is usually the case, we may commence the treatment of this disease by giving a mild portion of the emetic powders; after the operation, and the stomach has become settled, give a portion of the pulverized mandrake root, combined with a little of the cream of tartar and cloves, to prevent griping; and the repetition of these must depend upon the obstinacy of the complaint. After these have been given, the pa-

tient should commence the use of the following preparation: Take yellow root or golden seal, one drachm; bitter root, two drachms; white poplar bark, two drachms; capsicum, one drachm; cover with boiling water; then add a pint of Holland gin; of this let the patient take from half a wine glass to a wine glassful, morning, noon and night. During the same time the following decoction may be taken: Take the root of dandelion, and bark of barberry root; pound or bruise, make a decoction, and drink freely. Take two or three of the hepatic pills three times a day. The diet should be vegetable, light and nutritious. A raw egg may be taken every morning. Soot tea is likewise very good.

Dr. A. Sherman states that tincture of blood-root is a remedy for the preceding complaint; from ten to fifty drops three or four times a day, in water or herb tea.

If the disease be caused by a gall-stone passing along the biliary ducts, frequent courses of the medicine will have a beneficial influence, not only by relaxing the parts, but the act of vomiting will facilitate the passage of the stone.

Dr. Ewell says, it is believed that a mixture prepared as follows, has destroyed biliary stones, viz: Take sulphuric ether, three parts, and spirits of turpentine, two parts, mix, and for a dose, take one desert spoonful, or from two to three teaspoonsful.

The most powerful kinds of bitters are required in jaundice.—In sudden and violent attacks, bitters may be employed after the symptoms abate, but when the disease comes on in a gradual manner, they may be used from the first, in combination with stimulants. A tablespoonful of the expressed juice of green wormwood, added to an equal quantity of whiskey, taken three times a day before meals, has been used by some with especial benefit.

Dr. Thomson, in treating of jaundice, says: "I have attended many cases of this kind, and never had any difficulty in effecting a cure. My method is to give No. 2, or the composition powders, to raise the internal heat, and No. 1 to cleanse the stomach, and promote perspiration; then give the bitters No. 4, to regulate the bile and restore the digestive powers. If the complaint has been of long standing, and the system is much disordered, they must be carried through a regular course of medicine; and repeat it as occasion may require, and at the same time give the bitters two or three times a day, until the appetite is good and digestion restored."

In jaundice a change of residence, more especially a residence near the sea, during the summer season, will frequently be attend-

ed with a decided improvement in the general health, even where medicines appear to do little or no good.

In jaundice the digestive powers are always weak, and therefore a strict attention to diet must be observed. In the commencement of the disease, and more especially if the symptoms be violent, the diet should be confined to the lightest kinds of food. In cases of long standing, it may be more nourishing, but it must be easy of digestion. As a general rule, in jaundice, butter and all kinds of fat meats disagree with the stomach.

Jaundice occasionally accompanies mental derangement, and requires moral treatment, especially a residence in an insane asylum.

NEPHRITIS—INFLAMMATION OF KIDNEYS.

Description and Causes.—This disease is named from the Greek νεφρης, kidney and *itis* inflammation.

The large amount of blood carried to the kidneys by the emulgent arteries, is a conclusive evidence that these organs perform a most important office in the animal economy. The kidneys are among the greatest depurators of the system. They are only second to the lungs, and take precedence of the skin, and bowels.—If we regard the exclusive function of depuration, or of excretion following secretion, the renal is without parallel. All the other organs have absorbent together with secretory functions, and the first of these is in them all connected with the wants of assimilation and growth. While the kidneys have a secretory function they discharge azote, as the lungs do carbon, and these are the elementary basis of the chief excretions from the living body.

The particular part of the kidney which secretes the urine, is supposed to be the convoluted tubuli of the cortical portion and the medullary substance of the kidney. Muller has informed us that the urine is poured out from the whole internal surface of the pelvis and not from the extremities of the tubuli alone.

The influence of the nerves over renal secretion was manifested in the result of some experiments made when the nerves were destroyed, and there was an entire suspension of the secretion, while the blood circulated nearly as well as before.

In the great work of Berzelius on animal Chemistry, we learn many important facts in relation to the kidneys and the disease

by which they are affected. We are here taught that analysis shows nearly uniform results in the same person at different times. The proportion of the solid contents to the water will depend not only on the quantity of fluid taken into the system, but also the vicarious action of the skin and lungs.

The proportionate quantity of urea in the urine is dependent on the nature of the food, and also on the powers of assimilation.

The quantity excreted by the same individual in twenty-four hours is always nearly the same.

Having made the above remarks on the renal secretion, etc., we now proceed to describe *Nephritis* or inflammation of the kidneys. Some of our authors make several divisions of this disease, and describe the disease as affecting the cortical or tubular substance, the pelvic and the calices, the external cellular tissue and the fibrous membranes, etc. But while these distinctions may be well enough for the Pathologist, yet they are of little moment in a practical point of view. It may be well here to observe that there is rheumatism of the kidneys, or the arthritic species which differs in some respects from other forms of acute nephritic disease. This is generally caused by a metastasis from some other organ, and can only be treated on the same general principles.

Nephritis may attack all ages; but it is more common in the adult than in infants and old people. Men are said to be more frequently attacked with it than women; but, on this point, we need more accurate statistical information. Persons, born of gouty parents, or who are gouty themselves, are more liable to it than others. Climate is said to exert some influence, and this is probable. In the colder regions, the cutaneous depuration is diminished, and the urinary increased; the kidneys have, consequently, their activity augmented; hence it might be presumed, that nephritis would be more apt to occur in cold, moist climates, and seasons. If to this be added the use of stimulating drinks, which are more common in the temperate and cold regions, we can readily understand, why nephritis should prevail to a greater extent in them than in the warm regions.

The most common exciting causes of nephritis are—*First*, such as act more immediately on the kidneys—for example, blows on the lumbar region, and wounds received on that region, which implicate the kidney. It has, also, been ascribed to violent succussions—as dancing, riding on horseback, or in a carriage without springs on bad roads. This is the *nephritis traumatica* of the

German writers. *Secondly*, substances, which when taken into the stomach, or received in any manner into the circulation, irritate the kidneys—as cantharides, absorbed from the stomach or from a blistered surface—the oil of turpentine, oil of savine, and any stimulating diuretic. *Thirdly*, calculi in the kidney, especially such as are angular—the *nephritis calculosa* of writers.—*Fourthly*, it is occasionally witnessed precursory or succeeding to an attack of rheumatism or gout—the *nephritis metastatica* of writers; and *lastly*, the inflammation may extend from the bladder or uretha.

Diagnosis.—Acute nephritis is often ushered in by a chill and rigors, followed by febrile reaction. There is an obtuse dragging and deep-seated pain in the lumbar region. It may be restricted to a small space or extended over a large surface. Pressure is painful but sometimes requires to be made quite forcible. The pain is sometimes increased by motion, by coughing, sneezing, laughing and deep inspiration, and also by defecation, or any strong movement communicated to the trunk. Lying upon the back and the heat of the bed will produce uneasiness and pain. Pain seems to shoot out towards the groin, the testicles, down to the knee, to the bladder, and in the female to the uterus and the broad ligaments. If the inflammation is confined to one kidney, the pain will only affect the side occupied by the diseased kidney. In some cases the bladder has been the seat of the pain, while post mortem examinations have shown the kidneys alone to be diseased.

In a *rheumatic* affection of the loins, the pain is usually felt on both sides; and it is felt to a great extent—it generally affects a large surface. It runs to the hip; and, if it extend at all, it proceeds down the outer part of the thigh—taking the course of the sciatic nerve. There is not a frequent desire to make water; there is no pain in the course of the ureter, no enlargement of the testicles, nor any pain in the inside of the thigh. Motion, in that disease, very frequently produces pain—perhaps extending to the thigh, and especially about the joint and the "trochanter major." The latter is not only painful, but perhaps hot and swollen. Very often there is rheumatism in other parts; and, very frequently, there is profuse sweating. The absence of all *urinary* symptoms (if we may so call them), and the situation of the pain—in addition to the common symptoms of acute rheumatism—enable us in general, to distinguish the disease perfectly.

Suppression (non secretion) is often mistaken for retention of

urine in the bladder, but the introduction of the catheter will determine this.

Among the sympathetic phenomena of nephritis, we mention the retraction of the testicle; numbness of the thigh on the same side with the kidney, nausea, vomiting, borborygmus, constriction of the epigastrium, pains in the abdomen, swelling in the lumbar regions, diarrhœa with tenesmus, dryness of the tongue, thirst, pulse hard and full and sometimes intermittent. The skin is dry and burning, but sometimes it is covered with sweat which has something of an ammoniacal odor. There are some cases of hiccough, labored respiration and sleeplessness with headache.. The sympathy which all the other organs of the body have with the kidneys, may deceive even the experienced with the idea, that the stomach or some other function is deranged.

Treatment.—There is hardly a disease for which we are called to prescribe, that requires more energetic treatment than Nephritis, and it is seldom that the Reform Physician is disappointed in affording relief.

Among the most common remedies, we find the warm bath, the sitz, vapor bath, fomentations to the loins, mucillaginous drinks, like the flaxseed tea, sweet spirits nitre, and by some stimulating enemas, composed in part of lobelia, and some mild cathartic to move the bowels.

A stimulating liniment composed of equal parts of alcoholic tincture of camphor, cayenne and lobelia, with a small quantity of spirits of turpentine and some essential oils, will often afford relief. A strong tea made of the peach tree leaves, drank quite freely, is a very useful remedy in many cases.

From the close sympathy existing between the skin and the kidneys, the vapor bath will prove highly beneficial, and may be administered frequently. Where the patient cannot bear the fatigue of sitting up, the steam should be applied to the patient on a couch or mattress. Not only is the vapor bath useful by exciting perspiration, but it attracts the blood to the surface and thus lessens the undue determination to the diseased part. The same effect is produced by the emetic. The vapor bath is more especially indicated where the secretion of urine is nearly, or wholly suspended; for where the functions of the kidneys are suspended, those of the skin should be promoted, otherwise the urea will remain in the blood and occasion serious consequences. In some instances, however, the patient requires to be kept in a state of perfect rest, and other means should be used for promoting per-

spiration, such as warm fomentations to the loins, and hot bricks wrapped in damp cloths placed at the feet. Warm drinks should be taken, composition, pennyroyal or dittany tea. The foregoing treatment to be persevered in until the disorder abates.

If Nephritis has its cause in the presence of stone in the bladder, or from a gravel deposit in the kidney or ureters, the treatment must be directed to remove this by those remedies calculated to dissolve the gravel, as recommended for that complaint.

In some cases a slight sensation of pain or soreness is apt to remain, then Uva Ursi may be used, made in decoction and drank, at the rate of one pint per day. Limewater has also been recommended in doses from four to six ounces daily. If there should remain a debilitated state after the inflammation ceases, a few doses of bal. copaiva may be given.

The diet, while the system is suffering with this disease, should be milk, vegetables, animal broth and rice or barley, and for drink, whey and buttermilk are often recommended. Prof. Comings gives the following account in the Medical Reformer of May, 1857:

We held a post mortem examination on a female, not many weeks since, which was very interesting, from the fact that the affection of which the patient died was so obscure. On opening the abdomen, we found the stomach, liver, spleen, and whole alimentary canal in a healthy state; the pelvic viscera, also, in a good condition. In seeking still further for disease, we found the right kidney indurated and shrivelled to one-half its natural size—the left kidney in a healthy state. Tracing down the ureter, on the left side, we found it very much enlarged, and at the lower extremity, where it entered the bladder, we found a large calculus, weighing one ounce and a quarter, oval in shape, and resembling a large pigeon's egg.

This patient had suffered for years with pain in the right lumbar and illiac region, also, in the rectum, with sharp, shooting pains in the hip, down the thigh, and even to the heel. This poor woman had been treated for Sciatica, Piles, Rheumatism, and a long catalogue of diseases, but without relief. Prof. Mott had prescribed for her at the College Clinic, and various other distinguished physicians in New York, had treated her, without anything more than the slightest remissions in the paroxysms.

It is the opinion of some of our best authors, that a good number of cases of urinary calculi found in the bladder are originally produced in the kidneys, and then pass down the ureters to the

cist. It is also supposed that these calculi form in the infundibula and pelvis of the kidneys, and that they fall down into the ureter, thus closing up the passage, and there increase in size by the continual deposition of matter from the obstructed urine.

We rather infer, then, that renal or ureteral calculi are more common than is generally supposed. The symptoms are always masked, and there is great difficulty in detecting the presence of stone, since there is no stoppage in the water as in calculi of the bladder, and no change in the character of the urine.

In attempting a cure of nephritis, we should commence by emptying the intestines, by gentle aperients, employed as frequently as the occasion may require, in addition to emolient clysters, as constipation is to be guarded against; and then oleaginous or mucilaginous emulsions, with small doses of Canada Balsam, may be given. As a difficulty in making water is one of the symptoms attendant on this form of disease, the above will tend greatly to obviate it. The vapor bath will prove of infinite value in taking off the arterial action that maintains the inflammation, and at the same time in augmenting the urinary secretions. The loins should, at the same time, be covered with a large flannel, wrung out in warm water, or a large poultice made of corn meal, slippery elm and ginger, may be applied: copious injections of raspberry-leaf tea and Lobelia should be thrown up the rectum, and suffered to remain there as long as the patient is able to retain them.

A decoction of the dried leaves of the peach tree, prepared and drank in the quantity of a pint a day, has been found a very useful remedy in many cases of nephritis.

One of the very best medicines which can be used in nephritis is the uva ursi, given in wine glass doses every three hours.—We have often tried it, and, in general, with a very happy effect. When it arises from stone or a large piece of gravel lodged in the kidney, we should have recourse to the gravel pill, in considerable doses.

Those who are liable to frequent returns of this form of disease, or to obstructions in the kindneys, ought carefully to avoid getting wet, as likewise all exposure to cold. It is also recommended that they should lay aside the comfortable feather bed, and in its stead lie on a matress. Exercise should be moderate, and they should use no kind of spirituous liquors. Diaphoretics should be constantly given, in which a small quantity of brown Lobelia

is to be added, that a due action upon the vascular system may be maintained.

Take of Queen of the Meadow,	2	ounces.
Milk-weed - - -	2	do.
Juniper berries, - - -	2	do.
Dwarf elder, - - -	2	do.
Spearmint, - - -	2	do.
Wild carrot seeds, - -	2	do.

Put all into a mortar, and bruise: make a strong decoction.

Dose.—Half a pint, to be taken often through the day.

Use.—This decoction is very useful in *gravel*, *dropsy*, *etc.* It is strongly diuretic.

Take of Marsh-mallows, -	3	ounces.
Queen of the Meadow, -	3	do.

Add four quarts of water, and boil to one; then add two ounces of Gum Arabic and half an ounce of pulververized nitre.

Dose.—A tea cupful four or five times a day.

Use.—This is an excellent remedy in nephritis or inflammation of the kidney. It is also useful in the treatment of inflammation of the bladder, in hæmaturia or bloody urine, and other urinary diseases. It is a demulcent diuretic.

The following is the formula for Gravel Pill:—

Egg shells, - - -	1	ounce.
Nitre, - - -	1	do.
Castile soap - - -	4	do.

Separately pulverized very fine, then mix with pumpkin seed oil or oil of juniper, and roll in slippery elm.

Dose.—Two night and morning. After eight or ten have been taken, drink cream of tartar water freely.

URINARY CALCULI—GRAVEL.

Description and Causes.—Concretions are of a mixed nature. They may consist merely of the natural constituents of the urine, and may therefore be analogous to those diseases of the solids called "transformations," in which things naturally found in the body are present. Or they may be new substances—such as ought not to exist in the body at all—being analogous to those which are termed "new formations," or "non-analogous changes of structure."

The urine sometimes contains nitric acid, and we know that, if nitric acid be added to lithic acid, erythric acid is produced. It is of a very fine scarlet hue. If to this erythric acid pure ammonia be added, a purpurate of ammonia is produced; and, if we treat this purpurate with potass, and then again with sulphuric acid, a new acid is formed, called "purpuric acid;" so that erythric and purpuric acid do not exist naturally in the urine, but are the result of other changes. If nitric acid be formed (by disease) in the urinary secretion, purpuric acid may be formed; and then (as there are soda, potash and ammonia in the urine) we may have the purpurates of soda, potash and ammonia; and if these are added to the lithate of ammonia, then the lithate of ammonia which may exist in the urine, becomes of a fine pink or red color, and we have a pink or red sediment. Therefore, the pink and red sediments are essentially lithate of ammonia, which is formed in excess, so as to be insoluble at a common temperature; and they are deposited in the urine because they are in excess, or because the acid is in excess—they are super-lithates. The lithate of ammonia, and the other lithates are white of themselves; but, from the presence of the purpurates, they acquire a red or pink color, and if the yellow matter of the urine be absent (as in hectic), then, instead of being red, they become pink. All this, however, is comparatively unimportant.

In pyrexia, nitric acid appears to be formed in the urine, and the lithates (particularly the lithate of ammonia) are in excess; and, in consequence of the excess of lithic acid, or of lithate of ammonia, and the formation of the purpurates by nitric acid, a copious red sediment is produced; and though it is originally owing to the nitric acid, yet it is a lithate (generally the lithate of ammonia) which has been rendered red by the presence of the purpurates.

All this may be produced by the sympathy of the kidney with any other organ that is affected. From mere catarrh—slight inflammation of the mucous membrane of the air-passages, we may have this effect produced. In fever and in inflammation, the same occurrence takes place. If there be organic disease, especially of the liver, it has a tendency to produce pink sediment—that is, it causes an absence of the yellow matter, and consequently the sediment is pink. Very trifling things will produce this state in some people. Anxiety, strong exercise, a little pie-crust or pastry, or the slightest derangement may cause a red or yellow sediment.—Hence, Dr. Prout has called this "the sediment of health," though

it is seen in disease. He means that it occurs from such slight causes that it is hardly worth while to consider it as an indication of disease. All is not right, but still it will happen every day; and, indeed, by far the most frequently when the person is in a state which we cannot denominate "indisposition." Generally, the redder or the pinker the urine is, the more scanty is its quantity.

The temperature of the urine, when in the body, is sufficient to keep these matters suspended, and therefore it is generally passed clear; and it is not till the fluid is cool, that the sediment appears; and even then, if the person make water a short time afterwards, the heat of the fresh quantity of urine, causes the sediment of the former to be dissolved again, though, of course, a second cooling occurs. For this reason we observe this sediment far more frequelnty in *cold*, than in *warm* and *hot* weather. In hot weather, though the urine perhaps contains every thing necessary for such a deposition, yet it does not produce it; but in cold weather, if it so happen that the urine is not in excess (as it so frequently is), if we are not chilled, if we are in a warm room, if we do not diminish the perspiration, the quantity of urine remains the same as before; and then, on making water in a cold room, we are almost sure to have this sediment; although in summer, in the same circumstances, we should not, for the external heat would then be quite sufficient to keep these ingredients in a state of solution.

There is great variety in the color of the sediment. Sometimes it is red; sometimes it is reddish; sometimes it is brown (the color of a ripe hazel-nut); and so on—fainter and fainter, till the sediment is nearly white, or perhaps quite so.

Lithic-Acid Deposit shows Acidity.—When we see *red* or *pink* sediment, the urine is generally *more* acid than in health; and when it approaches more to *yellow*, it is *less* acid. It shows that there has been less nitric acid; and that less of the purpurates have been formed. A less change, therefore, has been produced on the lithate of ammonia by the purpurates; and therefore we have a fainter color. This is all very intelligible; but, it is necessary to show it, in order that it may be fully understood. In those states of the body in which there happens to be nitric acid formed in excess, we have the purpurates; and the purpurates, being present and united with lithates, produce a red or a pink color—just as it may be. In the case of red or pink sediment, therefore, the urine is acid; but if it so happen that nitric

acid is not formed in abundance, then the purpurates are not produced in so much abundance; and therefore they cannot change the color of the lithates (which is naturally *white*) to a *red* or *pink* hue. Hence, whenever this sediment is red and high-colored, we generally find the urine very acid; and in proportion as it is paler—goes through a faint brown and approaches to white—in that proportion, generally, is the urine less acid. It may even be deficient in the *natural* quantity of acid; and be rather *alkalescent.* The urine, when there is acid, is high-colored; but when the sediments are pale, and the urine is not acid, then the urine generally is pale also.

Besides the *nitric* acid *oxalic* acid has been found in the urine, in the form of a sediment; not a *powdery* but a *crystallized* one; and is in union with the oxalate of lime. Once only has Dr. Prout seen a powdery sediment; what he calls "an amorphous uncrystalized sediment of oxalate of lime," and then it was mixed with ammonia. We shall see, with regard to oxalate of lime, that one calculus consists entirely of it; and the tendency to produce oxalic acid, it is said, has been sometimes traced to eating sorrel; which contains that particular acid.

If the sediments of the urine be absolutely white, then they are not the lithate of ammonia, but the phosphate of lime, the phosphate of magnesia, or the phosphate of ammonia, or more than one of these. In this state of things—when there is this absolutely white sediment of the phosphates—the urine is *not* acid. On the other hand it is *alkaline;* or it becomes so very soon after it is passed. It is rare, certainly, for the urine to be quite alkaline at first. Sometimes the urine is all but alkaline; and it is no sooner passed, than it emits a strong smell of ammonia. The test for alkilies is, not *turmeric*-paper, but *litmus*-paper which has been exposed to acid. Reddened litmus paper is the most delicate test; for the smallest quantity of alkali brings back the purple hue.—When the sediments are white, and depend upon the phosphate, the urine differs, in other particulars, from the urine made when the sediment depends upon the lithate of ammonia. The urine, instead of being high-colored, is pale, with a faint, greenish hue; and, instead of being scanty—as is the case with *acid* urine—it is generally abundant; and, very soon after it is made, it undergoes such a high degree of decomposition, that it becomes very offensive, and smells of ammonia. Still there is one exception to this; and that is, when lithate of soda has been deposited. There was a white sediment in the urine; but it did not depend upon the

phosphates; and therefore the quality of the urine was like that which is seen where there is red sediment. The lithate of soda, if not colored by the purpurates, is perfectly white.

We have a concretion which is merely *lithic acid;* and is of a brownish-red or fawn color. Concretions of this kind are sometimes smooth, but sometimes they are tuberculated—rather rough. On dividing them, we find that they consist of concentric laminæ within. If they are broken, instead of being divided with the saw, the fracture is imperfectly crystalized, and of a deep fawn color, like the rest. Sometimes they are not in concentric laminæ; but form an amorphous irregular mass, of a pale color; but when they are pale, they are generally mixed with a little phosphate of lime, or even a little *oxalate.* If we apply heat to this calculus, it becomes white, and burns away; leaving a minute quantity of white-ash, which is generally alkaline. This calculus is quite soluble in potash; and we may precipitate it again by acid. It descends in the form of a white powder. If we add nitric acid as well as apply the heat, it is dissolved, and, on drying it, we have a fine carmine color, which is erythric acid. When *nitric* acid is added to *lithic* acid, a fine scarlet color is produced; and therefore if we take such a calculus as this, and add strong nitric acid to it, we obtain a color.

The calculus just mentioned (lithic acid) is rarely found pure.—It is generally mixed with the *lithate of ammonia;* and it is then clay colored—rather paler than the other. It has, however, the same general character. It is sometimes smooth, and sometimes tuberculated; sometimes it has concentric plates, and sometimes it is an amorphous irregular mass; but it is more rarely found in the latter state, than the calculous of pure lithic acid. The most common calculus of this description, is not pure lithic acid, nor pure lithate of ammonia, but a mixture of both. If lithate of ammonia exist in a calculus, either in a pure or in a mixed state, it decrepitates by heat; and if we add potash with the heat, ammonia is soon given off. It is soluble in the alkaline carbonates; whereas a calculus of pure lithic acid is not; and therefore we may easily distinguish the one from the other, by chemical means. A calculus consisting of pure lithate of ammonia, occurs generally before puberty. It is small, and rather uncommon. The calculus of lithate of ammonia is not only continually found mixed with lithic acid, but often with oxalate of lime.

The next calculus which is found in acid urine, is oxalate of lime." This, for the most part, is very easily known. It is brown,

rough, exceedingly hard, and generally exceedingly rugged.—From the irregularity of its surface, it is called "a mulberry calculus." Sometimes it is nearly black. On applying heat, a white efflorescence appears upon it. Oxalate of lime no longer remains, but pure lime; and this being alkaline, will stain tumeric-paper. Occasionally this calculus has been found smooth; but in that case it must be of a very small size. Generally it is a most formidable looking calculus: such as would make one shudder, when we remember that it is formed in the human bladder. It is known by its ruggedness and dark color.

There is another calculus which exists with acid urine; and it is called "cystic oxide." It is so very rare that, perhaps we may never meet with it; but we will describe it. It is of a yellow-white color, and smooth externally. Internally, it is a confused, crystalline, glistening mass. In point of size, it is small. If heat be applied, a peculiar odour is emitted; and it is soluble both in acids and in alkalies.

We now pass to the consideration of other calculi; which exist with urine generally deficient in acidity, and sometimes bordering very closely on alkalescency. These are the phosphates; and the first calculus of which we speak, is that composed of phosphate of lime. The colour is of either pale brown, or white. It is very smooth and polished, and has regular laminæ, which are very separable from each other. It is rare and small, and it is thought, by Dr. Prout, not to be a true urinary calculi; but to be formed in the prostate gland. It is not fusible by the heat of a blow-pipe; and, when dissolved, may be again precipitated. Although this calculus is not dissolvable by heat, yet we may dissolve it in muriatic acid.

There is another phosphate which, unfortunately, is very common. It may be known in a moment. It is the "triple phosphate;" consisting of phosphoric acid, magnesia and ammonia.—It is white, has no laminæ, and is easily pulverized or broken.—The calculus consists of the same substance as the white sand we mentioned." It glistens, and consists of a number of minute, white, sparkling crystals. The surface is uneven; being covered with minute asperities. If we apply heat or potash to this calculus, ammonia escapes; and therefore our chemical knowledge will enable us to say what it is. If we apply intense heat to it, it will at last melt; but this is effected with great difficulty. It is more soluble in acids, than the phosphate of lime; and may be precipitated again, in the form of minute shining crystals.

We have another calculus which is very common ; but not quite so common as the last of which we spoke. This is a compound of the last calculus with the last but one ; consisting of phosphate of lime, united with the phosphate of magnesia and ammonia. It passes under the name of the *fusible* calculus ; because it so easily melts under the blow-pipe. It is exceedingly white and very friable ; breaking under our fingers, like so much chalk. If we rub it on our sleeve, the coat is immediately dirtied—as it would be by chalk. Generally, it is not laminated ; but if it be separable into laminæ, we generally find between them the triple phosphate, in the form of shining crystals. When it is not laminated, but in a mass like chalk, it sometimes attains a very large size. It is very soluble in the acids ; particularly diluted *muriatic* acid. It is a calculus which frequently gives the surgeon a good deal of trouble —coming to pieces when he applies the forceps. We may easily separate the lime from this calculus. By adding oxalate of ammonia, the lime goes to the bottom ; and then, again, the magnesia may be separated by adding pure ammonia.

The disposition to form lithic acid, evidently appears to reside in the kidneys ; for these calculi are seen in that organ. Indeed, there is no reason whatever for believing that this description of calculus is formed in the bladder. It appears to be truly a renal calculus. If this diathesis be not very intense, there is merely an amorphous sediment ; such as we all have occasionally. Some people frighten themselves about it ; but unless the quantity be very great, there is no occasion for alarm ; especially if the sediment does not appear when the urine is first made. If it be so abundant as to be deposited before the urine cools—if it come from the bladder in the form of powder, then there may be danger ; and if it not only occurs when the urine is first made, and is warm, but takes place constantly, then the individual is almost sure at last to have gravel or stone ; that is to say, he will pass concretions ; or have a concretion so large, that it will not pass.

Some people will pass crystals with very little irritation ; but if irritation be produced by the sediment, then there is generally a mixture of amorphous and crystallized sediment ; and when the irritation is very great, it is generally because a large quantity is passed in both these forms. In these circumstances, there is generally more or less pain in the kidney ; irritation about the neck of the bladder ; a frequent desire to make water ; and more or less feverishness. The urine is acid and scanty ; it has a high specific gravity. Persons complain of these symptoms from tim

to time; and then they will discharge a large quantity of red or reddish sediment. The urine is very acid; and we should always test it. This state of things frequently comes on in persons who have a calculus already in in the bladder. Sometimes a calculus is formed in the kidney, and may remain there; and give the patient no trouble. A person may have a stone formed in the kidney, without being aware of it; and we may be surprised to find it there after death. Sometimes it will only cause an aching pain in the loins; and will not shorten life. But occasionally these calculi produce very great mischief. No doubt they continually pass in the form of minute concretions; and the patient is not at all aware of it; and they will lodge in the bladder, and there grow to the size of which they are found. Sometimes they pass from the kidney, after having obtained a size so large as to give great pain, as they pass through the ureter. This pain in the back, on their attempt to leave the kidney, is attended with vomiting, and perhaps with a great degree of feverishness. Inflammation may be set up, or it may not; and then, after a time, all these symptoms cease, perhaps suddenly; and, in a day or two, if the stone be very large, we have signs of calculus in the bladder.

The infundibula of the kidney are sometimes filled with these calculi. We see them sticking there; and sometimes the kidney will become blocked up with them. The pelvis is sometimes filled with them; the infundibula become greatly distended; and sometimes the ureter is blocked up with them; so that the pelvis of the kidney is distended into a mere bag. It is said that, in the museum of the College of Surgeons, there is a calculus weighing seven ounces and a half, which was taken from a kidney, and which caused no symptoms during life. This is analogous to what we stated with regard to the gall-bladder, where a large number of stones will sometimes exist, without being productive of any symptoms. These lithic-acid calculi are continually found in the kidney; and are of all sizes. It is probable that, in all the instances where they are found in the bladder, they have descended from the kidney.

Lithic-acid calculi (using the term generically) sometimes occur in great numbers. No fewer than two thousand have been voided, by one individual, in the space of two years: and one hundred and twenty have been known to come away in three days. It is the calculus which, of all, gives the least irritation.

In cases where the disposition is to form *oxalate-of-lime*, or "mulberry-calculi," the urine is likewise acid. A state of the

system, similar to that last described, takes place; and a similar mode of treatment is required. The "mulberry calculus," like the lithic acid, occurs in both sexes; and at all ages up to fifty. It is about fifty that it is most frequently seen; but it is never formed after sixty years of age. The "lithic-acid calculus" and its compounds occur in persons who are very dyspeptic, and who are disposed to be feverish and irritable; but the "mulberry-calculus" is continually produced in persons who have nothing else the matter with them; and, when produced, it may be discharged. The "lithic-acid calculus" and its compounds have been formed to the the amount of two thousand (of all sizes) in one indididual; but the "mulberry-calculus" seldom occurs more than once in a patient's life; or if it does return—that is to say, if another be produced—it is generally after a very long interval. The urine, in this state of things, is pretty good, and remarkably clear. The *amorphous* sediment of the oxalate of lime, is a very rare thing indeed; and as to the *crystallized* sediment of oxalate-of-lime, that is still more rare. A calculus of this description, often acquires an immense size in the bladder; and it does not appear to be produced accidentally. The lithic-acid or the phosphatic calculus will be produced accidentally, when there is a clot of blood, or a foreign substance has been introduced into the bladder; but this depends upon a peculiar state of the system, which is not understood; a peculiar diathesis, which appears unconnected with external circumstances. It sometimes *follows* the deposit of a lithic-acid calculus, and is sometimes *succeeded* by it; but nothing is more common than to find it alone. It sometimes happens, that oxalic acid ceases to be formed, and lithic acid is produced in abundance; and then the deposition in the external part of the calculus is lithate of ammonia, instead of oxalate of lime.

The two sediments of the phosphates---the sparkling glistening crystals, and that in which there are no glistening crystals, but with which the phosphate of lime is mixed—sometimes alternate. The same individual will, for a day, or a week, or perhaps a fortnight, deposit glistening crystals of the triple phosphates; and then, at other times, those which do not glisten at all; and sometimes the latter alternate with lithic acid; but then the lithic acid is very pale—verging to the phosphates; and sometimes, before it gives way to them, there is an alternation of the two. If there be a great deal of crystallized phosphate, then the urine is very alkalescent. The urea is very copious; and crystals are sometimes formed, before the urine is discharged from the bladder. This

deposition usually takes place after the urine is made; but in bad cases, it will take place before it is voided; and the instant the urine is made, the deposition subsides to the bottom of the vessel.

In the second phosphatic sediment—that in which there is a mixture of the triple phosphate and the phosphate of lime—although the symptoms are similar, as well as the state of the urine, yet they are both far worse than in the first state. In this condition of the body there is no inflammatory state. There are no marks of inflammation; but there is a morbid irritability. There is a bad expression of countenance—showing distress—showing something wrong in the system. The patient is generally sallow and languid; and experiences pain in the loins. There is generally more or less dyspepsia, and some abdominal derangement. Very frequently, there is a want of sexual power and desire; and when a person complains of that, it is always right to examine the urine. In many cases we shall find diabetes: in many others, an excess of urea; and in others, again, not only an excess of urea, but likewise a deposition of the "triple phosphate." The urine will vary on different days, and at different times on the same day—being at times copious, and at others less so.

The formation of calculi is called "lithiasis" (from λιθος *a stone*.) When there is a stone in the bladder, the symptoms produced are usually a particular pain at the end of the penis—a pain which the patient describes as "a *benumbing* pain," and which is increased upon exertion. This pain makes the patient pinch the penis as hard as he can; and if he feel a sudden call to make water, he usually puts his hand to the end of the penis; and children are in the habit of pulling the prepuce. There is a frequent desire to make water, and the stream suddely stops—the desire to make water, however, being still urgent. Sometimes a change of posture will cause the urine to flow again. Sometimes the urine, instead of suddenly stopping, will come away drop by drop—the discharge being attended with great pain, and perhaps with blood. There is pain in the bladder itself, especially on motion, and likewise pain and tenesmus on evacuating the intestines. If the calculus be large, or very rough, there is pain in the neck of the bladder, pain and numbness of the testis of the same side, and pain of the inner part of the thigh, along the course of the anterior crural nerve, and sometimes down to the foot, so that there is actually pain in the sole of the foot. All these symptoms are rendered worse by exercise.

Pain at the end of the penis, pain increased on motion, and in-

increased whenever the desire to make water comes on) a frequent desire to pass urine, a voiding of it drop by drop, tenesmus, and the presence of blood in the urine—all these symptoms may occur when there is no stone whatever. In the course of my life I have had every one of these symptoms, two or three times over, from mere inflammation about the neck of the bladder. The sudden stoppage of the stream, is the sign most to be depended upon.—Disease of the prostate, and inflammation at the neck of the bladder, will cause many of the other symptoms. Dr. Heberden says that the pain on voiding the urine is felt *after* making water, in the case of *stone in the bladder;* and worse *before* passing it, in the case of *diseased prostate;* and that in the latter case it is not increased on motion. The obvious reason why the pain is increased on motion, in the case of a stone in the bladder, is this: The stone is movable, and may therefore come forcibly in contact with different parts of the organ, by motion; whereas, the prostate is fixed. However, the prostrate is rarely diseased, except in the case of old men. Dr. Heberden says, that even pain and swelling of the testes are sometimes observed in disease of the prostate. But we may always ascertain whether the prostate is diseased by passing our finger up the rectum, and observing whether it is enlarged; and the certain way of ascertaining whether there is a stone in the bladder is to sound the patient.—In the latter case there is frequently secreted a large quantity of ropy mucus, which may be drawn out to a considerable length, and which subsides to the bottom of the vessel, in the form of a white tenacious mass. Occasionally, a small fragment of a calculus comes away, and when all the symptoms have become violent—whatever deposition there formerly was in the urine—whatever was the diathesis before, it now becomes phosphatic. The urine becomes pale and copious, it loses its acidity and has great alkalescency, and, if there be any deposition at all, it consists of the phosphates. In this state of things the agony becomes constant: the patient becomes emaciated, and death ensues. The phosphatic diathesis and the sufferings are proportionate to each other.

Treatment.—The treatment in most cases of urinary calculi will afford relief as alkalies form the principal part of our treatment, and where the deposits are of an acid character these deposits are neutralized.

The gravel pill mentioned in the treatment of Nephritis will, in most cases afford relief, and the general course recommended for that disease will be found suited for this complaint.

We should examine the urine which is passed first in the morning, because that is the least liable to be influenced by accidental circumstances, and therefore the most likely to show the actual state of the system. It should be put away for twenty-four hours, In order that we may make a perfect examination. In many cases, we may ascertain the point immediately, bnt the urine should be allowed to remain and cool, and the sediment, if there be any formed, will then be deposited. This kind of treatment is continually required after lithotomy, or the removal of stones in any other way; and, from the want of making a careful distinction, from the habit of giving alkalies when there is anything the matter with the urinary organs, infinite mischief is done. It is far better for nothing to be done, than to do something wrong; and mistakes, till very lately, were made every day, almost every hour, in the treatment of these cases.

The patient should take very little animal food—sometimes, perhaps, none at all. In many cases, the latter restriction may be necessary. At any rate, animal food should be taken in great moderation, and equal moderation is required in eating altogether. In general, it is necessary to abstain from wine, spirits, and strong malt liquors, though *mild* malt liquors may be admissible. It is necessary to avoid vinegar, sorrel, oranges and lemons—in short, every thing that is acid. It is likewise necessary that the patient should be moderate in the exercise he takes, and that he should keep an open state of the bowels.

If these various means fail, then the surgeon must remove the stone by lithotomy, if in the bladder.

Dr. Watson makes the following just remarks:

You must take care not to give these alkaline remedies too long, nor in too great quantity. You must not push them to such an extent as entirely to destroy the acidity of the urine, for if you do, your patient is exposed to the same danger as before, but from an opposite cause. A white sand or gravel will be apt to form in the alkaline or neutral urine, and this will collect itself by the force of aggregation, around any existing calculus, or foreign substance. The white deposits consist mainly of the triple phosphate of ammonia and magnesia, and if you examine collections of urinary calculi you will find that they are sometimes made up of concentric layers; and one layer may be composed of lithic acid, and the next of the triple phosphates, and so on, as the condition of the urine has alternated. You must test the urine, therefore, and see that it still reddens litmus, though perhaps faintly. In-

deed, it may do so without containing any *free* acid; so that urine which only slightly reddens litmus paper may nevertheless be capable of depositing the triple phosphate. It is much more easy to correct too great acidity than to rectify the opposite condition. We can almost always make acid urine neutral or alkaline, but to render alkaline urine acid is often beyond our power.

It is scarcely less important to attend to the functions of the *skin*, in persons having the lithic acid diathesis, than to the functions of the stomach. The warm bath is often an excellent adjuvant, in their treatment. In cold weather, warm clothing must be enjoined; and the avoidance, in all weathers, of such exposure to cold as might suppress or materially lessen the amount of healthy perspiration.

Henry states, in his Herbal, that he has cured a number of cases of gravel by a tea of the Senecia Gracilis, (*life root*,) to be drank freely. One person was cured of gravel and obstructions of urine by it, who had tried many medicines without the least effect. He took four quarts of a strong decoction of the leaves and roots.

Beside the course of medicine, injections of the lobelia powder should be given occasionally with a view to relax the system, and lessen the determination of blood to the kidneys. A teaspoonful or two of the third preparation of lobelia, in a teacup half full of bayberry tea, should also be given every hour or two, when the pain is severe, and cloths wrung out of hot water applied to the loins. Whether the disease be gravel or inflammation in the kidneys, lumbago, gout, or rheumatism, the treatment here recommended will be proper in each case.

ISCHURIA RENALIS—SUPPRESSION OF URINE.

Description and Causes.—This form of disease is named from the Greek ισχω, *to restrain* and ουρον, *revive*, and the latin word *ren* which means kidney.

The suppression of urine, the absence of urine, or the diminution of urine, when it occurs in the kidney, is called "ischuria renalis." If urine be found in the kidney, but cannot escape from it, owing to some obstruction in the *ureters*—then it is called "ischuria *ureterica*." If there be some obstruction in the bladder, it is then termed "ischuria *vesicalis*." If there be obstruction in the *urethra*, it is denominated "ischuria *urethralis*." There is no

analogy in these different words. If the urine be suppressed—that is to say, if none be formed—we call it "*suppression* of urine;" if, however, it be formed, but cannot escape, we call it "*retention* of urine;" so so that "ischuria *renalis*," and "ischuria *vesicalis*" are not at all analogous; and young beginners are often laughed at in the hospital wards, for saying "*suppression*," when they ought to say "*retention*," and vice versa.

If no urine be separated from the blood, coma soon supervenes, and death. It is believed that these consequences result from the detention of *urea* in the system. Urea is a mere excrement, which, in health, is removed from the blood by the kidneys, as fast as it enters that fluid. When it is not so carried off, it accumulates in the blood, circulates with it to every part of the body, and acts as a poison, especially upon the brain. This is one of several cases, showing that the carrying fluid of the body may become the vehicle of disease and death, if it be not duly purged of deleterious matters which pertain to the unceasing processes of organic life. If *carbonic acid* be not extricated by the lungs, the animal functions are as certainly and almost as speedily extinguished by that gas, as the flame of a taper might be. And when the outlet from the liver is shut up, when the blood is not purified from the excrementitious *bile*, the powers of animal life are weakened, and sometimes utterly and rapidly destroyed.

Suppression of urine, for a considerable time, is not, however, necessarily and universally fatal. Patients laboring under the epidemic cholera would secrete not a drop of water for some days; and yet recover. It was remarkable how entirely free such patients were from any approach towards coma. Was the urea here drained off from the blood in the enormous and unnatural flux from the stomach and bowels? It probably was; but we do not know that any chemical search was ever made for that substance in the fluids so effused. There are, however, some very singular instances on record of persons who have passed days and even weeks without secreting urine; and without showing any other indication of impaired health. What degree of credit such narratives deserve we do not know; but assuming that there was neither fraud nor mistake it may be suspected that either the natural secretion was compensated by some vicarious or supplemental discharge; or that a small quantity of urine was actually separated by the kidneys. "If any water, however, small the quantity (remarks Sir Henry Halford) had been made in these cases, I should have thought it possible that the patient might have recovered; for it has often

surprised me to observe how small has been the measure of that excrementitious fluid which the frame has sometimes thrown off, and yet preserved itself harmless. But the cessation of the excretion *altogether* is universally a fatal symptom *in my experience*, being followed by oppression on the brain." The same eminent physician states that in three of his five cases there was observed a remarkably strong urinous smell, in the perspiration, for twenty-four hours before death. This is of common occurrence in such cases. Other patients have vomited, or passed by the bowels, watery matters possessing some of the sensible qualities of urine: and a urinous fluid is said to have been found in the ventricles of the brain in some of the fatal examples.

These are not always clear. Like other diseases, and in the obscurity of the subject, it has been referred to exposure to cold. It may certainly be induced by mechanical injuries, either external, or from causes within the body. Thus, it is known to have been induced by calculus irritation of the kidneys. When one kidney is affected; the other may still accomplish the secretion; but it is apt to assume the same kind of irritation sympathetically; and, in this way, the secretion may be arrested from both simultaneously.

It has been suggested, that suppression of urine may supervene upon blennorrhœa when the discharge has been suddenly checked, but the occurrence must be rare. It would appear, too, to have been witnessed as secondary to some intestinal or cerebral disease.

Diagnosis.—Complete ischuria, or anuria, makes its attacks generally in the midst of perfect health; sometimes in gouty subjects it represents or supplies a paroxysm of the disease. The most notable symptoms, after those of general uneasines and anxiety, are nausea followed by vomiting, which continues to be one of the chief, as it is one of the most troublesome, symptoms through the whole course of the disease. There is at the same time a singular torpor, both of mind and body. The pulse in general is not much accelerated; sometimes it is slower and feebler than natural; the patient scarcely complains, and gradually lapses into a state of drowsiness and incoherent rambling; the drowsiness increases, and at length terminates in complete coma; in which state, sometimes after repeated attacks of convulsions, the patient expires. It is only after minute inqury that the practitioner called in to the case ascertains that some time has elapsed since the patient made water. Examination of the pubic region shows no fulness nor pain: a request that he should make water is so far complied with that he passes, after some delay, a spoon-

ful or two ; probably he cannot pass a drop. To give the requisite certainty on the subject, a catheter is now introduced into the bladder, and half an ounce or only a few drops of urine is discharged.

The *suppression* of urine—a deficiency of the *secretion*—may be entirely inflammatory ; and then we have symptoms of nephritis, and must treat it as inflammation. But sometimes this complaint is unconnected with any symptoms of inflammation of the part ; and it certainly is then a curious affection ; for it is usually followed by apoplexy. No urine is made, or scarcely any ; and, at last, absolutely none. There is no fulness of the bladder ; and when we pass an instrument—to ascertain whether it is a case of retention or not ; we find that the organ is empty. In general, the patient very soon becomes drowsy ; which drowsiness increases, till he becomes decidedly apoplectic, and perhaps dies. In the "London Medical Dictionary," Dr. Parr mentions a case, where no urine was made for six weeks ; and Haller quotes an instance, in which it was said that no urine formed for twenty-two weeks. These are very chronic cases ; and one cannot answer for the truth of that which Haller alludes to. We presume he mentions it on the authority of another. The disease has sometimes been ushered in with rigors, and sometimes not. Sometimes it has occurred without any particular symptom, till coma has made its appearance. Following the course of diseases of the kidney, it occurs more frequently in men than in women. It usually takes place in fat people ; and especially in those who are upwards of fifty years of age.

Treatment.—From what has been said in the description and causes of this disease, it must be inferred that it is a dangerous complaint and requires the most energetic course of treatment.—We should endeavor, therefore, as soon as possible to bring the patient under the influence of lobelia, as the relaxation and general action of our emetic affords relief. The warm bath is our next remedy, together with sudorifics, purgations and relaxing enemas.

Some authors recommend enemata of oil of turpentine and gruel or mucilage as one of the surest means of removing ischuria. There can be no objection to this treatment.

If suppression of urine is owing to *inflammation of the kidneys*, the patient should be treated as directed under that head, making free use of enemas, diuretics, and mucilaginous drinks. If he patient is restless or nervous, the skullcap, or lady's slipper may be added to the other medicines. If drowsiness, or stupor should

occur, or if the perspiration acquires a urinous smell, we must resort to active treatment, administering full and thorough courses of medicine, for unless we keep a constant determination to the surface of the body, it may be impossible to save the life of the patient. Stimulating injections every half hour or hour, are particularly beneficial, adding a small portion of lobelia to each, but not enough to excite unpleasant nausea.

Suppression of urine is frequently mistaken by medical men for *retention*, and they attempt a surgical operation, which often proves fatal to the patient. Dr. Warren, of Harvard University, remarked, in a lecture, that a gentleman residing in South Boston, was attacked, many years ago, with suppression of urine, and was attended by a physician, who, after administering the usual remedies, plunged a trocar through the rectum into the bladder, but no urine followed the withdrawal of the instrument. The operation was repeated a second, and even a third time, but without any effect than that of producing a copious discharge of blood.—The patient died, and it was found upon a post mortem examination, that the bladder did not contain a drop of urine. There was violent inflammation of the kidneys, however, which prevented the secretion of urine.

I have found it exceedingly us eful to steam the patient over a strong decoction of bitter herbs or hops, as recommended in several other complaints. Both the decoction and the herbs should be thrown into a suitable sized vessel, and a blanket put around the waist of the patient, that the steam may be applied more immediately to the seat of the disease. At the same time let his feet be immersed in water, and let him drink freely of parsley tea. After he has been steamed fifteen or twenty minutes, let the herbs be enclosed in flannel and applied over the region of the bladder, to be often renewed, and applied as hot as can be borne. This will usually produce such a relaxation of the parts as to cause a free discharge of urine. The patient may also take the following: Take a wine glassful of the best Holland gin; add to it a tumbler of spearmint tea and two teaspoonsful of spirits of nitre; sweeten with honey, and drink the whole. The same portion should be taken every hour until relief is afforded. In half an hour, or an hour, this treatment, in almost every case of retention of urine, will afford relief. The spirits of mint is also very efficacious; it usually gives immediate relief.

Suppression of urine, except when it occurs in the latter stages of disease, calls for prompt and energetic treatment, with a view to

excite action in the kidneys. When the suppression takes place with a group of other symptoms, denoting a fatal termination, as in the last stage of a disease, all remedial measures must of necessity prove useless. When there is a probability of a recovery being effected, stimulating injections should be administered to the bowels, and a tablespoonful of the third preparation of lobelia may be used in each injection, and repeated frequently.

Steaming is of the greatest importance, not only to throw the *urea* out of the blood by perspiration, but to sustain and augment the vitality of the blood by the heat and electricity imparted to it, and by quickening its circulation through the lungs.

Emetics will also aid in restoring action in the kidneys.

Hot stimulating poultices must be applied to the urinary region, or small of the back, and kept warm.

The patient should be kept in a perspiration—this is very important.

The following is an excellent formula to be used in this disease:

Equal parts of Eupaterium, (Queen of Meadow,
Folia Amygdal, (Peach Leaves),
Althea Officin. (Marsh Mallows),
Uva Ursi, (Bearberry),

made in decoction and drank freely.

The Asclepius Syriaca, (Milk Weed) one ounce to the quart in infusion, is a good remedy for this disease.

DIABETES—EXCESSIVE DISCHARGE OF URINE.

The term "*diabetes*" is derived from the Greek word διαβαινω—to stream through—the disease being characterized by the streaming away of a considerable quantity of water. This affection, on account of the excess of fluid, has sometimes been called "hydrops and matulam"—"chamber-pot dropsy;" but as there is no *accumulation* of fluid, it cannot, without great impropriety, be called *dropsy*. In dropsy there is an accumulation of fluid—not merely a *formation* of it. It is formed faster than it comes away, and therefore is termed dropsy; but as, in diabetes, the water comes away, the word dropsy has been applied to it with the greatest absurdity.

Definition.—The word *diabetes* is usually employed to signify

chronic excess of urine. A person would not be said to have diabetes, if he merely made a large quantity of urine for a day or two. The fluid may be either of a natural quality, or it may contain sugar. As, however, there is no distinct single name for that disease in which sugar is formed in the urine, and as it is sometimes formed without the urine being at all in excess, it would be well, perhaps, to restrict the term *diabetes* solely to *saccharine* urine, and to give such a name as *polyuria* to that form of the disease in which there is merely excessive quantity. But we find diabetes employed to signify a chronic excess of urine, whether there be sugar in it or not—the one being called diabetes *insipidus*," and the other "diabetes *mellitus*,"—"*honey*-like,"—sweet to the taste. It was to an *excessive quantity* of urine, that the ancients applied this term; for it does not appear that they were at all aware, that the urine was ever sweet. It was Dr. Willis, the English physician, who first pointed out that, in this disease, the urine is sometimes saccharine. The term is certainly employed by the ancients simply to denote a chronic *excess* of urine.

There is frequently a *temporary* excess of urine, in various diseases. In asthma, for example, a large quantity of pale urine is frequently made. So, again, in hysterical and dyspeptic people, this is often the case. Fright likewise will cause a temporary excessive quantity urine; so that persons who have been waiting anxiously to be called into a room, have been obliged to walk out twenty times in the course of an hour. Long-continued grief and anxiety have the same effect. Persons from leaving off some of their clothes, make a considerable quantity of urine; and it has been remedied by wearing their usual quantity of clothes again.

Sometimes it is produced by grief. It is produced by the long continuance of the depressing passions. It is sometimes occasioned by chills; by the exposure of the body to heat and cold alternately—especially when the body is in a state of perspiration. It sometimes appears to arise from the strain of the loins. Whether whiskey has any power in producing it we do not know. Excess of venery appears likewise to be a cause of it. Some authors mention this most decidedly, as the cause of the disease; and, in some instances we have asked the question of young men, and they have replied that they had indulged to great excess. Whether they had or had not we cannot say; because people feel differently as to what is excess. Sometimes there is no evident exciting cause at all; and, in some cases, it is evidently constitutional and hereditary. One German writer mentions having seen seven

cases of the disease in one family. Dr. Gregory said that he saw three cases in one family; and Dr. Prout knew a mother, an uncle, a brother, and a sister, all affected with the disease.

No age, it seems, is wholly exempt from the formation of chylous urine, although it occurs most commonly after the middle period of life; and in persons of an irritable habit of body, and impaired digestive powers from a previous course of free indulgence in the pleasures of the table, and in spiritous drinks. The exciting causes appear to be such chiefly as have a tendency to weaken and irritate the kidneys. Violent passions of the mind, and protracted courses of mercurial remedies, are also accounted among the ordinary exciting causes of this disease.

The last variety of urinary disease is, that in which there occurs *excess of the earthy phosphates in the urine.* This affection is by far more common and distressing in its consequences, than either of the two preceding urinary complaints. Prout is the first writer who has given a definite and circumstantial account of the phenomena and character of the urinary affections, characterized by a deposition of earthy phosphates. A preternatural copiousness of urine forms, in general, a conspicuous circumstance in this variety of the disease. In some instances, indeed, the quantity discharged is not inferior to that which occurs in the most perfect cases of diabetes. The urine is invariably pale colored: and in many instances, it is perfectly colorless and pellucid. When this is the case, the quantity discharged is always very profuse, and it deposites no sediment on being left to cool. Occasionally it happens that the quantity of urine is not much greater than natural; and in this case, it is somewhat opaque, and deposites a very copious pale-colored sediment after standing awhile. In none of the kindred affections, already considered, does the urine manifest so great a tendency to decomposition as in the present complaint.—In a very few hours after being voided, it becomes alkaline, and emits an extremely pungent and disagreeable smell. Connected with these morbid conditions of the urine, there always exists very great irritability of the general system, and an obvious derangement of the digestive functions. The patient is tormented with flatulency, nausea, costiveness, or diarrhœa; attended with a sense of weight and oppression after taking food; and variable and capricious appetite. "The stools are extremely unnatural, being either nearly black or clay-colored, or sometimes like yeast. These are always accompanied by more or less of a sensation of pain, uneasiness, or weakness in the back and loins. There is a sallow,

haggard expression of the countenance; and as the disease proceeds, symptoms somewhat analogous to those of diabetes begin to appear—such as great languor, depression of spirits, coldness of of the legs, and other symptoms indicative of extreme debility."

Prout asserts, that "a large proportion of the cases which have come under his own observation, were distinctly traced to *some local injury of the back*—such as a fall from a horse, etc. Among the general causes, he enumerates protracted depressing passions; excessive fatigue. The most common local causes, besides the one already mentioned, are some irritation about the bladder, or urethra, especially when of a chronic character—"such as a foreign substance introduced into the bladder, including all sorts of calculi; the retaining of a bougie or catheter in the urethra; strictures of the urethra in particular constitutions;" and disease of the prostrate gland.

When injury of the spine is the exciting cause of the disease, the prognosis may, in general, be regarded as unfavorable. Prout observes that this affection "very rarely gives orgin to calculus in the kidneys."

There is another variety of urinary disease, in which the presence of a large portion of albuminous matter in the urine is the characteristic symptom. This is the variety which has probably been most commonly described under the name of diabetes insipidus; for along with its albuminous principle, the urine is *always* greatly increased in quantity. There are two varieties of albuminous matter occurring in the urine—namely, the chylous and the serous. The first, according to the observations of Prout, occurs most frequently; "it may, however, be remarked, (says this writer,) that strongly defined instances of this variety are not very common, and that by far the most frequent form which the disease assumes seems to be of an intermediate character; that is to say, the albuminous matters partake in some degree of the properties of both those of chyle and serum; though generally more those of the chyle."

A morbidly copious discharge of chylous urine was known and described by the ancients as a variety of diabetes. Celsus divides too great a profusion of urine into thin and thick; the former kind, he says, though most frequent, is less dangerous than the latter variety, in which a great quantity of urine is discharged, together with chyle or milk, and the body consequently rapidly deprived of its nutritient principles. Some writers deny that the chyle ever passes off with the urine, as has been stated. They

assert, that where the urine has exhibited a milky color, it must have arisen formed in the kidneys, and intimately mingled with the urine in its passage down the ureters to the bladder. That this is a mistaken opinion, is satisfactorily attested by some of the most observant physicians, of both ancient and modern times.—The appearance of chyle in the urine has been noticed even in apparently healthy subjects. Van Sweiten, in his Commentaries, says, "that he has seen in himself some hours after a meal, and especially after hard walking, his urine turbid and milky at the moment that it was evacuated;" and he adds, that he had afterwards observed the same kind of urine in others. Galen also seems to have noticed this chylous state of the urine. But the authority of Prout is alone sufficient to establish the opinion that the milky appearance of the urine in cases of this kind, depends solely upon the presence of unchanged chyle. Mr. Elliotson, in his edition of Blumenbach's Physiology, relates a remarkable instance of chylous urine. This case occurred in a young married woman. In the morning, the coagulum of chyle in the urine was pale, with pink streaks; in the evening it was white. After fasting for twenty-four hours, the coagulum "was extremely pale, with pink streaks." This kind of urine is extremely prone to decomposition, becoming speedily very offensive to the smell. In some instances, says Prout, the urine on standing awhile, "throws up a sort of creamy matter upon its surface."

Diabetes, usually, makes its appearance in a very gradual manner, although in some instances it comes on suddenly, with slight chills and febrile commotions. When its invasion is gradual, it is generally attended from the first with various indications of a disordered state of the digestive organs—such as variable appetite, acid eructations, occasional nausea, and vomiting.

The quantity of urine discharged in this affection, is almost always extremely great; and in some instances truly enormous.—Cases are reported in which, from twelve to fifteen pints of urine have been discharged daily for several weeks. That such a drain from the system must cause great and rapid exhaustion and wasting of the body may be readily conceived; and, indeed, the utmost degree of prostration and emaciation never fail to ensue as the disease advances in its course.

The urine in this disease is generally of a pale straw-color, approaching sometimes to a shade of green. Its smell is usually faint, resembling that of milk, or according to some, that of fresh animal broths; and its taste is more or less sweet, from the sugar

which it contains. Diabetic urine always contains very little or no urea, and in most instances it is entirely destitute of lithic acid. It enters very slowly into putrefactive decomposition, but passes readily into the actuous or vinous fermentation. In these circumstances it differs very essentially from the urine of other varieties of disease resembling diabetes—in which latter it always putrifies with great rapidity, and becomes exceedingly fœtid.

Diagnosis.—In our diagnosis we will describe the two most prominent forms of this disease. The one consists of an excessive quantity of urine; not at all impregnated with sugar, and the other this saccharine principle fully developed. The first is called *polguria* and is sometimes followed by the *melitus*.

Sometimes it exists alone; and not unfrequently, after a length of time it will cease. This incipient diabetes is more common in women than in men. The urine is very pale, in general; and if it continue, thirst and dryness of skin are mechanically produced. An excessive secretion of water is going on in one part of the the body; and there is therefore less water for the secretion of the mouth and skin. From the loss which the body sustains, there is also weakness and hunger. This condition may frequently be recovered from, by wearing warm clothing, employing the hot-bath, or going to a warm climate; and by the exhibition of iron. Persons who have labored under this form of the disease have, by medical men who have not properly examined the urine, been said to be cured of diabetes; as though they had had the saccharine form of the disease.

In "diabetes mellitus," or *true* diabetes, there is sugar in the fluid; and generally there is also an excessive quantity of fluid.—The general symptoms mentioned, are produced in this affection. From the loss which the body sustains, there is great debility; from the body losing its nourishment, there is hunger; and from the want of fluid, there is thirst and dryness of skin. The hunger is sometimes excessive; so that the patient not only feels very hungry at the usual time of his meals, but he feels hungry during the greater part of the day. The food which the patient takes, does him (he says) "no good;" and he is presently anxious for more. Patients generally complain of a sinking at the pit of the stomach; and the uneasiness there occasionally amounts to aching. The thirst is sometimes so great, that many quarts of fluid are drunk in the course of the day; and the skin is sometimes so dry that the hair falls off. The feet and hands are frequently cold; there is lowness of spirits; and, in almost every case, peevishness

and fretfulness. There is also one very remarkable symptom—the loss of sexual power and desire. There is also frequently pain of the loins; but whether it arises from an affection of the kidney, or is merely a symptom of debility we do not know. Although the whole becomes emaciated, there is frequently œdema of the legs; and usually there is costiveness. From the deficiency of fluid in the alimentary canal, there is not only dryness of the skin, and thirst, but the tongue is sometimes white and clammy. Frequently, however, it is smooth and red; and the saliva and mucus are excessively tenacious—so that the patient is much annoyed. The gums sometimes become very red, and slightly ulcerated. The saliva is occasionally sweet; and so likewise is the breath. Dr. Latham says, that the body smells like hay—the breath frequently has sweet smells—has something of the odour mentioned by Dr. Latham. Very often there is redness and soreness of the end of the urethra. Phimosis may arise, perhaps from the irritating quality of the fluid. We usually find the pulse quick, perhaps full; and at last it becomes weak. There is a hectic appearance in the patient's face—we frequently find a flush upon his cheek, as well as quickness of the pulse; and, at last, we have decided hectic. In many cases there is great sweating.—Phthisis is a very common termination of this complaint. Indeed, the majority of diabetic patients have died of phthisis. The urine has a particular odor, which is not perceived by smelling the pot; but if we partly fill a phial with it, and keep it corked for a little time, on withdrawing the cork, we may perceive a peculiar smell—something like peppermint. It has also a sweet taste; which we may ascertain by desiring the patient to taste for himself. Generally the urine is clear, and of a lemon color. Besides the presence of sugar, there is usually a diseased secretion altogether.

The diagnosis is sufficiently easy. It may be made by measuring the quantity of fluid, by weighing it, and by analyzing it. We obtain, in diabetes, a brown treacly extract; which, on tasting, we find to be sweet. No one can object to taste it; for it is not urine, but sugar. When the fluid is evaporated, there is nothing left but "hard-bake;" which tasts just as well as any *other* "hard-bake." But although the disease is made out easily enough, when we suspect its existence, and it really does exist, yet it is a disease which is continually overlooked. It comes on so insidiously, that many persons have it for a length of time, before the medical attendant suspects its existence. The patient complains of

being weak and languid; does not know what is the matter with him; and the quantity of urine may not be such as to attract his attention—so that frequently no light is thrown on the disease.—No disease is more easily passed over—unless the patient chances to mention that he makes a larger quantity of urine than usual.—When we see a patient emaciated, complaining of thirst, with a good appetite, and a dry skin; while we can see no reason for these symptoms, either in the chest or abdomen—it is well always to inquire into the state of the urine.

The general *prognosis* in diabetes, must be considered unfavorable. Among the *favorable* symptoms in this affection may be enumerated a moderate flow of urine, of a specific gravity not higher than 1-035; the appearance in the urine of lithic acid, either in its amorphous or crystallized form; the recent appearance of the disease, and absence of thirst; the retention or gain of flesh and strength; and (more than all) immunity from organic disease, especially of the lungs. On the contrary, when the flow of urine is permanently excessive, and of high specific gravity; or when this secretion is pale-colored, opalescent, and serous; when the thirst, emaciation, and debility are extreme; or when organic disease, particularly of the lungs, is present, the chance of recovery is much diminished. But when (as is too frequently the case) several, or all of these unfavorable symptoms co-exist, the chance of recovery is not only diminished, but *absolutely hopeless.*

Treatment.—There are three objects to be kept in view, in the treatment of every case of diabetes.

First, to restore the defective power of the digestive aparatus:

Secondly, to cut off, or restrict as much as possible, the supply of saccharine matter from without:

Thirdly, to mitigate or remove the most distressing symptoms.

If we could achieve the first of these objects, the other two would fall out of sight; for the disease, which is really a variety dyspepsia, would be cured. But hitherto all the resources of our art have, in this respect, been baffled. Our main hope of ultimate success must lie in the regulation of the *ingesta;* whereby, also, the second indication is to be fulfilled. *Some* of the food is, in every case, carried to the proper account, or the patient would speedily die. If we can succeed in directing a sufficient amount of healthy nutriment to the organic tissues of the body, the draining away of any supufluous sugar will be borne well enough.

About the beginning of the present century, Dr. Rollo discovered and taught, that a diet composed exclusively of animal mat

ters had a signal effect in reducing the quantity and in diminishing the sweetness of diabetic urine. Mr. M'Gregor's experiments tell us why this is. Animal food furnishes but scantily the materials for the formation of sugar. "The saccharine alimentary principles are chiefly derived (says Dr. Prout) from the vegetable kingdom, and indeed constitute what may be called, by way of distinction, *vegetable aliments.*" If, then, we can exclude aliments of this kind, and confine the patient to animal food alone, we thus cut off the supply of the *materies morbi;* and without indeed curing the disorder, suspend its worst effects. But unluckily very few persons can long endure this mode of living. So far as they can endure it, they are comparatively safe. We are obliged to relax, in some degree, the rigor of our rule; and it is curious to observe how suddenly and decidedly the saccharine properties and the quantity of the urine are augmented, when by stealth, or by permission, the patient adds to his meal the smallest portion of vegetable food—even a biscuit or two.

We must, therefore, contrive to vary the animal diet as well as we can; encouraging the patient by a free license to choose among ths different kinds of meat, game, poultry and eggs, in their diversified modes of preparation, and admitting into his bill of fare as small an admixture as possible of vegetable substances.

It is very evident, that, whatever be the definite pathology of this disease, the skin, as an extensive outlet, sympathizing powerfully with almost all the glandular viscera, is an important agent in its removal. Attention to this fact should never be overlooked in our remediate measures. The combination, therefore, of the vapor bath, the cold water dash, a highly pungent stimulating lotion, and the application of friction, will be very useful in exciting the action of the skin in diabetes.

The influence of regular courses of medicine in breaking up the formation of these new habits and associations of this disease in the animal economy, must be considered of the first importance; and in no instance in their exhibition should the cold water dash be omitted. By this, we instantly recover the tone or strength of the surface that may have suffered a little relaxation and debility by the hot vapor bath. A strong preparation of pepper and vinegar, or pepper and brandy, should be rubbed upon the whole surface daily, and afterwards, friction continued for some time with dry flannel. Bayberry alone, or in combination with other vegetable astringents, should be advised daily, or in frequency to suit the condition of the case; and in conjunction with these, it may be

necessary to give bitter root or capsicum in small quantities, to obviate their constipating tendency. A liberal portion of nerve powder has been very favorably noticed as possessing a valuable remediate agency in the cure of this affection, and may be given in combination with composition, or other powders.

The bitter tonics may be given intermediately to advantage.—Dietetic means may certainly be regarded with considerable attention towards a successful termination of this complaint. Patients should be restricted, as much as possible, to animal diet, with the view of keeping out of the circulation the saccharine principles which vegetable substances alone afford.

When we recur to what has been stated above concerning the close chemical analogy between urea and sugar, the former being little else than a duplication of the constituent parts of the latter, with the addition of a large proportion of *azote*, it would seem that in diabetes there is a great deficiency of azote in the blood, in consequence of which the kidneys cannot form *urea;* but instead of it, secrete the saccharine matter which characterizes the disease. Now, as animal substances—especially the muscular parts, contain a large proportion of azote, whilst vegetables contain little or none of it, it appears probable, that the benefits which result from the former kind of food, arise from the abundant azote which it furnishes to the system by which the kidneys are enabled to secrete urea instead of saccharine matter. This accords with the gradual changes which occur in the urine in the progress of amendment—for in proportion as the quantity of sugar decreases, that of the urea increases.

Regular uniform exercise is highly recommended as an auxiliary mean in the restoration of this affection.

Steel is sometimes singularly beneficial in repairing the strength and enlivening the spirits; as indeed it is well known to be in other forms of disease attended with a copious and permanent drain upon the system, and with a diminution of red blood. Of course it may be combined with opium, or with any other medicine which the circumstances of the patient may render needful.

We scarcely need say that the bowels require attention. Not that active purgation is advisable, but simply their regulation.

We have found the following pill to be a very valuable remedy for this disease. Let not its simplicity prevent its use:

R.—Virgin Turpentine, - - 1 ounce.
Cayenne, - - - ½ do.

Mix, in slippery elm, sufficient to make in pill mass and roll into the usual sized pills.

Dose—Four to six, or eight, morning and evening.

When the patient is too feeble to bear sitting up, the vapor bath may be applied in bed, and in this way a moderate perspiration continued by it for an hour or two. When the skin is very dry and harsh, it may be difficult to excite perspiration, and the patient will consequently be more or less oppressed with heat, and require frequent sponging over the face and body with tepid water, or vinegar and water, until perspiration be brought on. Capsicum tea or other stimulants should be given, together with nauseating doses of the tincture of Lobelia.

The sumac leaves and berries made into a strong decoction, adding a portion of cayenne, should be occasionally given; and during the first period of the disease, frequent doses of the tincture of Lobelia, or the compound lobelia pills, should be administered.

The common treatment in this disorder is so various and opposite, that it is impossible to state in what it consists, except it be said, in a word, that it is strictly empyrical. The indication of cure will be, to adopt such a course of treatment as will restore the tone of the system, which must be effected by restorative medicines. If there is nothing to contra-indicate, give a mild *emetic;* after this has operated, let attention be paid to every secretion and excretion of the system. The bowels should be kept regular, the skin moist and the feet warm. Let the patient take the following decoction: Take beth root, black cohosh, crane's bill, wild cherry and hemlock bark, equal parts; pulverize: to a tablespoonful of the powder add a pint of boiling water, and let it be drank cool or cold through the day. A mild *laxative* pill should be taken, to keep the bowels regular; and, for the febrile symptoms and irritation, let the *diaphoretic powders* be taken at bed-time; at the same time let the surface be bathed with *tepid ley water.* If, after using the above means, the disease is not removed, or the patient does not grow better, give three *capsicum pills* in the morning and three at night, to be accompanied with the use of the *restorative bitters.* A *strengthening plaster* may be applied to the small part of the back: should the disease still prove obstinate, the *bitters* may be taken, the emetic occasionally repeated, and perspiration promoted, with the use, occasionally, of a purgative consisting of the pulverized *blackroot* and *cream of tartar.* The tepid bath, during the treatment, should be used every other day. All these means are calculated to excite a healthy action in the system and remove the disease, by imparting tone and energy.

It is said that a decoction of the Stophylia trifolia (bladdernut) and the Cerasus Siritina, (Wild cherry) given in wineglassfull doses three times a day is a most valuable remedy.

ALBUMINURIA—BRIGHT'S DISEASE OF THE KIDNEY.

Description and Causes.—We are indebted to Dr. Bright for a knowledge of the fact, that, in organic disease of the kidney, the urine is generally in this albuminous state. Andral, in his "Clinical Reports," had previously mentioned a case where he found the urine albuminous, and the kidney in a granulated state; but as he had no more facts in his possession, he came to no general conclusion; nor would he have been justified in doing so.—Dr. Bright, however, has collected a large number of cases; and he finds, that when the kidney is in a disorganized state, the urine is generally albuminous.

The presence of albumen may be established by the majority of re-agents, which serve for its detection in pure water. The combination of the three characters—coagulability by heat and nitric acid, and its *non*-precipitation by acetic acid—affords alone incontestible evidence of the presence of albumen. But these three characters must co-exist—since a mistake might arise from the circumstance, that urine containing milk will coagulate with heat and nitric acid; but, *unlike* albuminous urine, will also coagulate on the addition of acetic acid. When the urine contains *alkaline* materials, although albumen may be present, it will *not* coagulate by heat. Nitric acid, however, by removing the alkalinity, will induce coagulation. Some curious results have been made out by Rayer and Guibourt on albumen. They have shown, that nitric acid in *minute* acetic acid in *large*, and phosphoric acid in small or large proportions, will *deprive* albumen of the property of coagulating heat. But—what is remarkable—larger quantities of nitric acid will immediately precipitate it. These are practical facts, that should be known, in the examination of the urine. It may here be stated, on the authority of recent microscopic discoveries and researches by Quevenne, Donne, and others—that the epithelium of the genito-urinary mucous surface, undergoes continual desquamation, and that in some diseased states, this desquamation increases very much; so that, unless carefully ex-

amined, the turbidity of the urine dependent upon their presence may be mistaken for albuminous opacity.

It is not easy to assign a common cause, or, in particular case, the specific cause of Bright's disease. As in many other organic degenerations with functional disturbance, the operation of causes is often of long duration, and constitutes a state of predisposition, on which any ordinary exciting cause ingrafts the open disease.— It is well remarked by Dr. Bright, that there is great reason to suppose that the seeds of this disease are often sown at an early period ; and that intervals of apparent health produce a false security in the patient, his friends, and his medical attendants, even when apprehension has been early excited. Intemperance is the most usual predisposing cause, that which deteriorates the blood, overtasks for a long time the kidneys in their functional exercise, and prevents their organic actions. Exposure to cold, or cold and moisture, is the most common exciting cause, or, at any rate, that which developes and aggravates the disease. Warning and monition are conveyed very impressively in the following language of Dr. Bright: "When intemperance has laid the foundation, the mischief will generally be so deeply rooted before the discovery is made, that, even could we remove the exciting cause, little could be hoped from remedies; but at the same time, a more impressing warning against the intemperate use of ardent spirits cannot be derived from any other form of disease with which we are acquainted; since, most assuredly, by no other do so many individuals fall victims to this vice." Constitutional circumstances are stated by Dr. Christison to clearly predispose to it. These are, the constitution of intemperance, the scrofulous habit, and that state of the system which succeeds to scarlatina. Suppressed perspiration was a most conspicuous cause in Dr. Osborne's cases. On his reviewing the causes of the diseases (dropsy with albuminous urine) in thirty-six cases, it could be directly referred to suppressed perspiration in twenty-two of these cases.

A still more conspicuous part is allotted to the skin in the etiology of albuminuria, by a late writer. He had long observed, as many had done before, the coincidence of marked derangement of the cutaneous functions with the presence of albumen in the urine; and he determined to ascertain, by experiment, whether the former bore a causative relation to the latter. He ascertained, that, by stopping up as it were, the pores of the skin and obstructing cutaneous transpiration entirely, he could give rise to albuminous urine, which was also of an acid or neutral reaction. This

result was obtained in dogs and rabbits, whose skins had been carefully coated with an agglutinative material. But strange as it may seem, the entire removal of the skin of any of these animals did not produce albuminous urine, nor other morbid phenomena, such as the diminution and loss of animal heat, caused by merely coating the skin in the manner described. The effects of this latter process are due to a suspension of exhalations in which the function of the skin seems to be merely excretory.

M. Foureault explains the formation of albuminous urine in his experiments by saying that the excess of lactic acid in the blood, owing to the suspended or defieient cutaneous transpiration, abstracts the soda by which the albumen is kept in a fluid state, and this latter is preeipitated in the urinary excretions.—The salts which ought to find exit by the skin, are also retained in the eireulation; and by the predominance of alkaline bases, the urine becomes, if not alkaline, at least but slightly acid. The alkalescence of both the sweat and urine is remarked in diseases in which the skin is inactive, as in scrofula, phthisis, and especially albuminuria.

We find that the habitual use of articles of heavy digestion, sueh as cheese, pastry, smoked meat, etc., may so irritate the kidneys in persons predisposed to the disease as to bring it on.—The constitutional, by whieh he seems to understand the sialogogue, action of mercury, is represented by Dr. Christison to be an oecasional cause. Diuretic medicines, taken to excess, have appeared to Dr. Osborne to bring on the disease.

Diagnosis.—The symptoms of granular disease of the kidney have been arranged under the following heads: loeal pain and other loeal uneasiness; disordered digestion; diseased state of the urinary secretion; derangement of the general circulation, together with an altered condition of the blood; leucophlegmatia; and a varity of secondary or incidental affeetions of textures and organs at a distance from the primary seat of disease, amongst whieh the most frequent are; œdematous effusion into the cellular tissue, serous effusion into the serous saes, inflammation of the serous membranes, bronchitis, diarrhœa, rheumatism and affections of the brain. These symptoms are variously grouped in partieular cases, arising, in part, from the disease being at times, acute, at others, chronic; and, in part, from the great number and eomplexity of the secondary disorders.

In the aeute form of the disease, along with general symptoms of pyrexia, the urine may be very seanty, and, at times, altogether

suppressed. That which is discharged, is, however, highly albuminous, and, occasionally, although rarely, mixed with blood.

There is, along with these symptoms, often an uneasy feeling, and, at times, positive pain in the region of the kidney, with great irritation about the bladder, so as to lead to the belief, that the mischief is vesical rather than renal. This pain may be augmented on exerting pressure or percussion over the region of the kidney.

As in other affections of the kidney, the stomach and bowels usually sympathize, so that nausea and vomiting are of common occurrence, with more or less derangement of the intestinal functions. These symptoms do not continue many days without the secondary affections of dropsy, especially of the limbs and face, coma, with or without convulsions, and acute serous inflammations, more especially pleurisy. Dropsical effusion, especially, is seldom long absent, and, when it occurs, it assumes the character of inflammatory or active dropsy.

This form of the disease may prove fatal in a few days, or it may be checked by appropriate active treatment, but, what is more likely, the active symptoms may pass away, and those of the chronic state take their place.

The chronic form of the disease may be such from the onset, but it may also be the sequel of the acute form. The disease may be proceeding on obscurely, and may be indicated by little more than gradually increasing debility, with great paleness and other signs of ill health, and no suspicion may prevail that the kidneys are affected, until the occurrence of some secondary disorder may unequivocally announce the existence of the renal mischief. When the patient is then interrogated, he may reply that he has experienced more or less irritation—at times very trivial—about the urinary apparatus, which may have required him to rise from bed once, twice, or oftener during the night, to empty the bladder.—This condition may endure for a long period—for even years; or, accidental circumstances may light up the acuter symptoms already described, or give rise to some of the secondary disorders. The essential disease is, however, considered to be distinguished by the following indications. Reduction of strength; emaciation, not always, however, considerable; remarkable uniformity of the complexion; and, commonly, great paleness; or, on the other hand, at times, a peculiar pale brownish dinginess of colour; defective transpiration, as indicated by dry skin, and want of perspiration, as indicated by dry skin, and want of perspiration under exercise; often, a tendency to drowsiness; frequently, too,

weakness of digestion, or even well marked dyspepsia, not unusually attended with sickness, or retching, in the morning, on awaking from sleep ; thirst—together with an important pathological condition both of the urine and of the blood, and, sometimes, more or less irritation about the urinary organs. Of these symptoms, none would seem to be invariable, except the altered condition of the urine and blood, with perhaps also the unhealthy complexion. On the last symptom, however, obviously not much reliance can be placed, but the two former are pathognomonic.

In the early period of the disease, the urine is generally greatly diminished in quantity; and, at times, nearly or altogether suppressed. The last symptom is a serious one, and is usually followed by fatal encephalic disease. When the fluid is very small in quantity, it is generally very high colored, and bloody. Most commonly, however, its appearance is healthy ; and, at times, a sediment forms as it cools, which is generally lithic acid or lithate of ammonia. Occasionally, a phosphatic sediment has been observed ; but this is rare, except as the result of the alkaline condition, induced by long standing, and consequent decomposition.—Generally, the urine froths more than usual when shaken ; and, on blowing into it through a tube, bubbles are formed as in soapy water. This property is confined, however, to urine that is loaded with albumen. At this stage of the disease, the specific gravity does not differ much from the natural standard. It is usually from 1021 to 1028—the average specific gravity of healthy urine, according to Dr. Christison, being 1024 or 1025. It is very seldom so low as 1016, unless where its quantity is greater than natural, and it can be understood, that where this is the case, the specific gravity will usually be less. At this stage, therefore, if we admit, that there is a reduction of density, it is to a slight extent only; but, at the same time, the urine, on the application of the appropriate tests, exhibits, that it contains a large quantity of albumen, and, along with this, an unusually small quantity of its solid ingredients ; for, although the density of the fluid may be as high as 1020 or even 1024, this is partly owing to the albumen, which is a foreign component ; and when the fluid is filtered after the coagulation of the albumen, the specific gravity is found to fall four, five, or even seven units.

When the disease is greatly advanced, the quantity of urine is often but little less than in health ; and, at times, far exceeds the healthy standard. Its appearance is much the same as in the early stages ; and the same kinds of sabulous deposits may be met with.

The density is, at this period, invariably much reduced. As the granular deposition proceeds, the density falls from the normal point, before mentioned, to 2016, 1014, 1014, 1012; and in the advanced stage, it is commonly as low as 1010, 1008, or 1007, even when the quantity secreted is rather under than over the healthy standard. The lowest density, ever noticed by Dr. Christison, when the quantity was not in excess, was 1004.

Seeing, then, that this peculiar disease of the kidney is coupled with effects so grave and perilous, and seeing that one of its most positive and distinctive marks is an albuminous state of the urine, two questions of great interest at once present themselves.

1. Does albuminous urine *always* imply the presence of Bright's disease?

2. Is bright's disease, when present, *always* accompanied by albuminous urine?

To both these questions the answer is—no.

It is certain that some articles of food have the effect, in some persons, of rendering the urine for a time albuminous: perhaps it would be more correct to say that certain forms of indigestion cause this change. Albumen has also been detected in the urine under that general state of irritation produced occasionally by mercury, or by a blister to the skin. In the crisis of some febrile disorders, and in some cases of pregnancy, the same phenomenon has been observed. Whenever blood, proceeding from any part of the long tract of mucous membrane which lines the urinary organs, mingle with the urine, the fluid of necessity contains albumen, and coagulates if tested by heat or by nitric acid.

On the other hand, when the kidney is really affected in the way already described, the admixture of albumen with the urine is apt to disappear, for a while, even suddenly.

Another important question, therefore, now arises. Finding albumen in the urine, how are we to know whether it does, or does not, indicate the presence of Bright's kidney?

We may judge, in part, by frequently testing the urine, and noticing whether the albuminous impregnation be transitory or persistent. In part also we judge by the absolute amount of the albumen in a given measure of urine. If the water be deeply charged with that unnatural ingredient, the presumption is strong that the kidney disease is in progress; and when that disease is confirmed, another remarkable change is found to have taken place in the urine. Its specific gravity is very low; and strikingly

in contrast with that of diabetic urine. This is therefore a very strong additional diagnostic circumstance.

With regard to the prognosis in this disease, it of course varies according to the degree of granular disorganization, and this is pretty well measured by the density of the urine: when it is very low, the organic mischief is, of course, great. At the same time it will have been understood, from what has been said, that albuminuria may exist without serious mischief of the kidney, and may be merely an index of a favorable change occurring in some acute malady. Where the kidney is really diseased to a great extent, the prognosis must be very unfavorable. Sooner or later, it is sure to induce serious secondary disorder. In fact, the disease of the kidneys rarely ends fatally, except through the intervention of one or other of them. The most serious secondary disorders are inflammation of the serous membranes, chronic vomiting, diarrhœa, tubercular liver, valvular obstruction of the heart, and, above all, coma. At the same time, the secondary symptoms themselves, under appropriate management, may be occasionally removed, and the patient afterwards enjoy tolerable health.

Treatment.—Notwithstanding the old authors recommend Calomel, bleeding and opium for this disease, yet they all acknowledge this treatment to be inefficient. The truth is, we shall not find a better remedy than the vapor bath in treating this disease, Dr. Bell remarks:

It has happened frequently, within Dr. Osborn's experience, that by external heat alone, an improvement, both in the quantity and quality of the urine, and a material subsidence of the œdema, have taken place; and he even goes so far as to assert that, "*whenever general perspiration came on, either spontaneously or in consequence of medicine, then the cases always terminated favorably.*"

Thus it will appear that we have old school authority for our sweating process. From the fact that we have dropsical symptoms, it would seem advisable to administer diuretics, but it is best to use judgment in the kind of articles used.

No little difference of opinion prevails respecting the advantages and even propriety of prescribing diuretics in granular disease of the kidney. Where hypothesis may be enlisted on either side, we are fain to look to experience for settling the question; but even here the contrariety of practice is great. Diuretics, entirely proscribed by Osborne, are regarded by Christison as valuable and almost indispensable remedies. Bright, whilst objecting to

their use in general, gives a qualified assent to the use of them, and particularly of digitalis on certain conditions; and Rayer reports cases in which they have been the chief means of cure. By conforming to the rules which ought to govern us in the employment of diuretics generally, we shall probably find less difficulty in determining the propriety of their use in the present disease.

On all means of preserving an equable temperature of the skin, the precautions and pains can scarcely be too great, and must never be suspended. Flannel is to be constantly worn next the skin, and the rest of the clothing, including protection for the feet, correspondingly warm. In the house, the apartments should be kept of a mild and uniform warmth, with as much care as would be deemed necessary for a consumptive patient. To the same effect is the recommendation of Dr. Bright, that a person suffering under renal disease should seek a warm climate for restoration, at any rate relief and suspension of his malady. The exercise should be gentle and sufficient, enough to moderately excite the skin without causing much sweating and the danger of subsequent chill—and to quicken the circulation without giving rise to fatigue. In harmony with this outline of cutaneous and external treatment, would be the use of the warm salt bath, and still better, the vapor bath.

A great deal depends upon diet. Milk, when it agrees, ought to be the preferred article. Light animal food frequently agrees; pastry fruits, and all badly-cooked vegetables are injurious. Fermented and distilled liquors, and tea and coffee, should be abstained from.

These measures failing—as fail they often will; and diarrhœa forbidding the use of drastic purgatives; or drastic purgatives and diaphoretics together proving insufficient; we *must*, even in renal dropsy, choose the least of two evils; or rather we must incur the risk of one possible and contingent evil, for the chance of obtaining what, if obtained, is a certain and positive benefit; we must endeavor to remove the dropsical accumulation by means of *diuretics*, whether these accelerate the progress of the disease in the kidney or not.

Such diuretics, therefore, are, in the first instance, to be selected, as seem the least likely to stimulate the kidneys injuriously.

The following formula has been very much extolled:

R.—Ex. Sambucus Can. (Elder,)
" Leontodon taraxacum (Dandelion,)
Leptandrin (Black Root,)
} Equal parts.

Made in pill of common size. Dose, 2 to 4 each day, or sufficient to move the bowels lightly.

HÆMATURIA—BLOODY URINE.

Description and Causes.—This affection derives its name from αιμα blood, and ουρον urine. It is a discharge of blood from the bladder. It is in fact a hemorrhage from the urinary organs.

Sometimes the blood comes from the kidneys themselves, sometimes from the pelves or ureters, and often from the bladder. It is symptomatic of or caused by some other affection more frequently than it is idiopathic; and hence we meet with it in certain epidemics, as remittent and typhoid fevers; affections of the spleen and liver, and in scurvy. It occurs as an endemical disease in some countries. In the Isle of France, children from their earliest infancy are liable to this complaint, without suffering any pain, or its appearing to prejudice their general health. One of the physicians of that island says, that three-fourths of the children are affected at one time or another with hematuria. In these cases the bloody urine is generally observed to alternate with that which is chylous or sero-albuminous. The blood globules may be detected by the microscope.

The most common cause of hematuria is the presence of some foreign body in the pelvis of the kidney, in the course of the ureter, or in the urinary bladder.

The most common causes of hæmaturia are of a mechanical kind—for example, calculi impacted in the kidney, ureter or urinary bladder. It may, likewise, be induced by blows on the loins or abdomen, and by violent inflammation of the urinary organs—although transudation of blood, under the last pathological conditions, are not as common as in the inflammation of other mucous membranes. Occasionally, hæmaturia is an indication of malignant disease of the kidney, and also of fungosities at the inner surface, and especially near the neck of the bladder. It occurs, too, as symptomatic of disease of the prostate gland, and of the lining membrane of the urethra.

Blood alters, of course, the color of the urine with which it is mixed; giving it, in some instances, a bright, red tinge, and causing it in others, to assume a dark hue; to become brown like coffee, or even to approach to blackness. Hence we are sometimes ready to conclude that urine of a distinctly red color, or so very dark as to appear almost black, derives its peculiar tint from blood that has somehow mingled with it.

But, in truth, urine may be perfectly red, or nearly black, and yet be quite free from blood. There are certain substances which,

when taken as food, invariably impart a red color to the urine.—One of these is the prickly pear, or Indian fig as it is sometimes called, the *cactus opuntia* of botanists. When the Spaniards first took possession of America, many of them were alarmed by observing that they passed what they supposed to be bloody urine: but it was soon discovered that the red color of the secretion was owing to the liberal use they made of that fruit. Dr. Hennen, in his book on "Military Surgery," quotes a precisely similar example from Elliot's Journal of his Travels for determining the boundary of the United States. He says that "his people ate very plentifully of this substance at an island of the Mississippi (Kayoani,) and were not a little surprised the next morning at finding their urine appear as if it had been highly tinged with cochineal. No inconvenience resulted from it. It would seem (he continues) that the juice of this plant may be analyzed into a crimson dye by other processes besides that of the chochineal insect."

Another vegetable substance with which, in this country, we are more familiar, and which will produce the same effect, is *beet-root*. Desault relates the case of a person who noticed that he every morning voided urine of a deep red color; exactly such as would result from adding fresh blood to that liquid, except that no deposit took place. The man became frightened at this, and consulted M. Roux, who, after some examination, began to suspect that the water owed its red appearance to some other cause than the admixture of blood. It turned out that his patient was in the habit of supping every night upon the red beet-root; and as soon as, by M. Roux's advice, he relinquished this article of diet, he was freed at once from his supposed bloody urine, and from his fears.

Diagnosis.—If the urine be red in consequence of the presence of blood, we may always distinguish it by the eye. It is not of a deep orange color; but is of downright red. We may always distinguish it from the most red sediment, produced by feverishness and inflammation. It is a true red—such as no one should mistake; but if we have any doubt, we may dip a rag into it; and we shall find it stained red—without any tinge of yellow, or any orange tint; as is the case in the highest colored urine if no blood be present. Frequently blood is discharged so pure, or in such a quantity, that (independently of the color) we ascertain its presence at once. But we have another point to ascertain. After having distinguished whether it is blood or not, we have also to find out whence it comes—whether from the kidney, or some

other part. If it be furnished by the urethra, the latter will present evident symptoms of disease. It is common in violent gonorrhœa, in stricture, and when a bougie is passed. There can be no difficulty in ascertaining whether the hemorrhage comes from the uretha; the point most difficult to ascertain is, whether it comes from the *kidney* or from the *bladder*. It is rare for hemorrhage to take place from the ureter.

The mode of distinguishing between hemorrhage from the kidney, and that from the bladder, would be by observing where the other symptoms reside—whether in the loins, or down in the pelvis. Sometimes, it is impossible to make an accurate diagnosis.—But if there be any symptoms besides the bleeding, emaciation, and debility, we should observe whether they are situated in the *loins* or about the *bladder*. If they are in the *loins*, there will be pain there, most likely sickness, and perhaps tenderness in the region of the kidney. If the symptoms are in the *bladder*, we have pain about the pelvis, and a frequent desire to make water—far more so than the other case—there will be far greater irritation. But it is to be remembered, that disease of the bladder and urethra will cause pain in the kidney; and that disease of the kidney will cause irritation about the bladder, as well as the symptoms about the testicle. The latter show how distant the symptoms may be, when the kidney is itself affected; but generally, the greater intensity of the symptoms at one spot rather than at another, will remove all difficulty.

When blood is present in any considerable quantity, a portion of it subsides to the bottom of the vessel, and may be recognized without any difficulty. And even when there is not enough blood to give a marked and characteristic deposit, a very small admixture of it will be found to disturb the natural transparency of the urine, rendering it of a smoke-brown or dull cherry color; whereas the reddish or pink urine which contains no blood is clear and untroubled; and if, on cooling, it throws down a sediment, that sediment may be redissolved by heating the urine—a result which does not take place when a portion of blood has been deposited.—Another rough test is, that a mixture of urine and blood tinges a piece of white linen dipped into it, of a red color. A better criterion is afforded by gradually raising the suspected urine to the boiling temperature. If it contains blood, a grayish-brown flocculent precipitate, consisting of coagulated albumen tinged with the coloring matter of the blood, will form, and gradually subside, and leave the supernatant liquid clear, and with its natural tint.

But if you use the microscope, that will furnish you with the best evidence upon this point. If there be blood in the urine, there will be blood corpuscles, turgid or collapsed, diffused through the urine, or collected at the bottom of the vessel: and whatever modifications they may present, they may always, Dr. Bird says, be identified by "their non-granular surface, uniform size, and yellow color under the microscope."

We have by no means accomplished the diagnosis when we have merely ascertained that there is blood in the urine; and that the case is a case of hæmaturia. The question remains, of what is such hæmaturia a sign? The blood emerges from the urethra, but it may have been poured out at any point of a long and somewhat complex tract of mucous membrane. It may have proceeded from one or both of the kidneys; from each or either ureter; from the bladder; from the prostate gland, or from the urethra.

The bleeding may be presumed to come from the kidney, or from the upper part of the ureter, when it is accompanied or preceded by a sensation of heat, or of weight, or by some degree of pain, in the situation of the kidney; especially if these uneasy feelings are confined to one side of the body. This presumption will of course be strengthened if calculi have been known to descend from the kidney; and converted into certainty if the patient suffers, together with the hæmaturia, a fit of the gravel; and if there be no symptom of stone, or of disease, in the bladder.

On the other hand, when no symptoms referable to the kidney or the ureter are present, while there are signs of stone, or of disease of the bladder, or of a diseased prostate—a mixture of mucus with the blood; occasional retention, or a sudden stop in the stream of urine; pain referred to the glans penis immediately after the bladder is emptied—then we conclude that the blood proceeds originally from that receptacle.

When pure blood comes away, either *guttatim*, or in a stream, unmixed with urine, and neither preceded nor accompanied by any desire to make water, it is probable that the *urethra* is the locus of the hemorrhage.

Bleeding from the surface of the urethra doubtless may, and commonly does, proceed from some mechanical injury done to that channel: as in the passage outwards of a fragment of stone, or inwards of a surgical instrument. But it is probable that blood is sometimes exhaled from the same membrane in considerable quantity, under circumstances which favor or produce a strong determination of blood to the genital organs.

One circumstance yet remains, worth noticing in respect to hæmaturia; and it depends upon the hemorrhage itself rather than upon the disease of which the bleeding is a sign. We allude to the coagulation of the effused blood in the bladder, however it may have got there. The circumstance is sometimes the source of much inconvenience, and suffering, and even of danger, to the patient. It may cause retention of the urine and all its evil consequences; and a still worse event is, that the coagulum sometimes supplies a nucleus, around which calculous matter is deposited, and thus lays the foundation of that horrible malady, "the stone."

"When (says Dr. Prout) the bladder becomes distended with blood, and complete retention of urine in consequence takes place, recourse must be had to a large-eyed catheter, and an exhausting syringe, by the aid of which, and the occasional injection of cold water, the coagula may be broken down and removed. If the hemorrhage be so profuse that the bladder becomes again distended with blood in a very short time, the injection of cold water into the rectum or bladder is sometimes of great use; and should these means fail, from twenty to forty grains of alum may be dissolved in each pint of water injected into the bladder; a remedy that seldom fails to check the bleeding, even when the cause is malignant disease.

Treatment.—Constitutional treatment will always be found necessary in this disease. Astringent injections into the cist will sometimes stop the discharge, and the best are the Nympha Odorata, (Pond Lilly,) the Hammamilis Virginiana, (witch hazel) and the Geranium muculatum, (cranesbill.)

Tonic diuretics, and especially those of an astringent character are indicated, hence the Rhus Glabra (sumac,) the Uva Ursa, (bearberry.) These various articles made in decoction are always beneficial in this disease.

When hemorrhage takes place in chronic disease of the kidney; when we have seen chronic disease previously existing; when we suspect the presence of calculi in the kidney, or cancerous affection of the organ, or any other structural disease—the same treatment must be adopted. We cannot, in general, lower the patient. If there be symptoms of inflammation, we must act accordingly; but, in general, the administration of turpentine in small doses (carefully watching it lest it should irritate the kidneys)—together with the exhibition of astringent diuretics, and giving the patient good support—is all that is needful. The treat-

ment will give no difficulty at all. We have only to treat it in the same way as we should treat hemorrhage from other parts. Consider what is the patient's strength, on the one hand, or his debility on the other—consider whether there are symptoms of active inflammation, or how far the hemorrhage appears to be passive only. If the disease be not inflammatory, oil of turpentine is of as great use here, as in hemorrhage from the alimentary canal; but it is necessary that we should carefully watch the patient; because that which is passive to-day, may, through sudden excitement, be active to-morrow.

Where the discharge of blood takes place from the urethra, the hemorrhage may be controlled, when within reach, by pressing the canal between the finger and the thumb, and afterwards applying a large compress to the part by means of a T bandage, so as to keep up the necessary degree of pressure. Generally, however, the seat of the hemorrhage is in the bulbous or prostatic portion of the urethra, where no pressure is available. The effect of cold applications to the perinæum and to the lining membrane of the rectum is generally, in such cases, marked.

If the hemorrhage is caused by the presence or the irritation of a stone or calculous deposites, such remedies must be used as we have recommended for gravel, and especially the gravel pill.

RHEUMATISMUS—RHEUMATISM.

Description and Causes.—This painful affection derives its name from the Greek ῥευματιζω, *to flow*, as it was supposed to be caused by some Rheume which flowed through the system. It is also called arthritis or inflammation of a joint as it often occupies joints.

The most frequent exciting cause of this disease, is the application of cold, or cold and wet, more especially if the patient be fatigued. The more remote cause—the use of mercury. How this is affected is more difficult to discover than to prove the fact. It is, however, now pretty generally noticed in Rheumatism, that the stomach and liver is diseased, and that there is more or less derangement in the assimilating organs, and the presence of acid in all parts of the system. There is in most cases, immense quantities of acid (chiefly of lithic acid) thrown off by the skin, and some-

times by the kidneys. In these cases the saliva is commonly acid, and even the blood itself in severe cases, has been observed to be in acid condition. Thus the dark colored fluid ejected from the stomach in yellow fever, and some other analagous diseases, appears to owe its color solely to the presence of blood which has been blackened by the large quantity of lithic acid present, and which blood and acid must have been thrown off together, from the unnatural fluids circulating in the vessels of the stomach itself.

Dr. Gully has observed that the internal irritation renders the nutritive energy of certain parts, at the periphery, namely, the fibrous sheaths and coverings of the muscles, feeble, and their power of resisting external causes of disease deficient. When cold and dampness are applied to the skin, the blood is driven thence towards the parts most ready, from their want of organic energy to receive and retain it, and least able to resist its flow.—Those parts are the tissues which have been most violently employed, those connected with the organs of voluntary motion, the fibrous tissues, particularly of the muscles and joints. In some persons, these tissues are congenitally weak, the hereditary predisposition exists, and there is a morbid sympathy always existing between them and the centre of nutrition. The laboring man who keeps his stomach and liver in a constant state of irritation with spirituous drinks; who uses his voluntary muscles hard and long every day, and is exposed to all kinds of weather is the most eligible and the most frequent victim of Rheumatism, for in him, the condition of the stomach, of the limbs and the exciting cause meet in all their strength. Hence, in places where perry and cider abound, peasantry are subject to rheumatism. *Why*, the rheumatism seizes one joint or set of muscles, more than another, we know not positively, but we do know that more or less digestive derangement is present, at the time. We never saw a rheumatic attack in which such derangement was not present previously to its commencement.

It often happens that a patient, racked with pain, is instantly relieved by a copious vomiting of bile, or by a common diarrhœa. We must rather infer then, that rheumatism is not a mere inflammatory pain of the sheaths of the muscles, but has its origin in some digestive irritation exhibited by a certain kind and amount of fibrous inflammation; and this may be caused by the circulation of this acid blood in its passage through the minute capillaries of the joints, and tendons since nothing but the white and thin blood

can pass through the circulation of the tendons and ligaments. Perhaps this blood may be almost entirely of an acid character. It has no red particles and may lack those qualities which render it subservient to nutrition and assimilation. If this view of the subject is correct, we readily perceive how the bleeding, cupping, leeching and blistering processes tend directly to weaken the energy of the organs and render them more liable to distension and congestion. A late English writer on rheumatism, Dr. M'Leod, remarks that free sweating fails to remove or relieve whilst it is forced by such means as opium, antimony, calomel and stimulating spirituous liquor and tinctures. The patient is only sweating off the irritation caused by the drug, not the original one; that must be removed by a more natural process of sweating. Such a process we have in our vapor bath assisted by our more pure stimulants.

The presence of lactic acid cannot be accounted for except on the supposition that a certain portion of what ought to constitute, or actually has constituted, the albuminous parts of the system, is decomposed or destroyed, and that consequently other unnatural and probably poisonous principles are developed in conjunction with the lactic acid; to which in part, as well as to the acid, many of the secondary consequences of mal-assimilation are to be referred. In other words, the alimentary matters, which ought to be converted into albumen, by the primary assimilating organs, and the albuminous matters of the blood, which ought to be converted into the living gelatinous and albuminous tissues, are, by the deficient or disordered operations of the vital processes, converted into lactic acid and other unnatural combinations.

The action of mercury on the human organization has often been found to induce this disease, indeed, most of the cases that have come under our observation could be traced primarily to the use of mercury in some of its forms; exposure to cold and dampness were the immediate exciting causes, but the pathological state of the system above described, was generally induced by previous administration of this deadly poison. In all these cases you will find the patient complain of pain, more in wet, damp weather, than when clear. They are particularly affected, by *any electric* changes in the atmosphere.

Diagnosis.—It is said that gout and rheumatism were not accurately distinguished from each other, till the year 1642, both of them at that time passing under the name of arthritis. Bellonius, who was a physician and suffered much from rheumatism, is said to have been the first to have made an accurate distinction.

While this disease resembles gout in some respects, yet it may be distinguished by the following points; the former attacks the small joints, while the latter may be seated in any organ.—Gout generally begins at night, and rheumatism invades at any time. It does not come on at any particular season of the year. It arises from an evident exciting cause, and therefore it may come on at any time. Gout is produced by want of exercise and high living, use of wine, etc., while rheumatism attacks those who labor severely and are much exposed. It leaves one organ or part of the system and goes to another—it migrates in the most singular manner. When the disease goes off, the parts do not desquamate and itch as they do after gout; but they merely cease to be hot—cease to swell, and cease to be inflamed.

This form of disease receives different names, as it affects different parts of the system. When the hip is affected we call it *Sciatica*, when the back, we call it *Lumbago*. Frequently it occurs in the back of the neck and then the patient is said to have a "crick in the neck." It may affect the face, and indeed it may affect almost any part of the body, where there are fibrous membranes, aponeuroses, ligaments or tendons. There is little danger from this disease except a metastasis to some of the internal viscera. This change of the disease takes place more frequently about the time of puberty and in young adults; it is well, therefore, to observe the state of the chest. Now and then there is a change in the head, and phrenitis is set up, but it is quite rare, often the pleura and the pericardium become affected.

We have two very well marked forms of this disease, viz: the acute and the chronic, they are described in the following symptoms.

In the acute form, there is heat, pain, and in most instances a swelling of the joints. The pain is severe but not so violent as in gout. The parts are generally hot and red, and frequently, from the pain being situated in the theca of the tendons we have seen streaks running up. Usually, there is feverishness and a quick pulse, but in general, full and soft. The tongue is not often foul and dry, but very white, and the urine is high colored. The pain shifts from one joint to another, leaving the part it occupied, red, swollen and very tender to the touch. The bowels are obstinately costive in most cases. There are a few instances in which profuse sweatings come on, but not followed by relief.

The joints are exquisitely *tender*, as well as painful. The fi-

brous tissues, which are endowed with but little sensibility in their sound and healthy state, become acutely painful when occupied by inflammation. The pain is increased by pressure, and therefore by whatever implies pressure; by movements of the joints, consequently. The patients are reduced to perfect helpessness by the pain. Their common phrase is, that they have entirely lost the use of their limbs; and this is true enough in fact, but not true in the medical sense of those words. They have not lost the *power* of moving them; there is no *palsy;* but they *dare not* move them, because the effort gives them so much torment.

In the one, then, the inflammation commences in the immediate neighborhood of one of the larger joints: not *in* the joint, but *near* it. It attacks the tendons, fasciæ, ligaments, and possibly also the muscles. There is not at first much redness or swelling; but after the pain has been of some duration, there is a puffiness around the parts affected, caused apparently by turgescence of the blood-vessels, and at length slight pitting, or *œdema*, may supervene, from effusion into the surrounding areolar tissue; and what redness is present is disposed in streaks, following the course of the tendons.

On the other hand, in the synovial variety, which shows itself more frequently and more plainly in the knee than anywhere else, the pain which marks the onset of the complaint does not last long before some degree of swelling is perceptible, together, in most instances, with slight redness of the skin; and this swelling is not due so much to turgescence of the blood-vessels, or to œdema of the areolar tissue, as to fluid poured into the *cavity* of the joint. And the form and character of the swelling indicate that it is the result of fullness and distension of the synovial membrane. It is tight and elastic and protrudes, as it were, through the spaces that intervene between the tendons and ligaments by which it is in other parts bound down and restrained; *fluctuation* is often distinctly perceptible in the superficial joints, when both hands are applied to them.

These are the *local* differences between the two forms of the disease. And there are differences equally well-marked between the constitutional symptoms that attend them.

It is in that form which is called *fibrous* rheumatism, that the inflammatory fever runs so high; that the tongue is so thickly furred; that the round, full, bounding pulse occurs; that the profuse, spontaneous, acid perspirations, break out, which exhaust the patient's strength without alleviating his sufferings; that the urine is high-colored, and deposits a copious sediment like brick-dust.

In the *synovial* form, the fever is either less intense from the beginning, or soon moderates after the joints begin to swell; the tongue is less foul; the patient sweats much less. It is to this form that the term *rheumatic gout* is often applied. And growing experience has led us to believe, that in this popular appellation the real nature of the complaint is most truly expressed.—Gout and rheumatism are very similar in kind; and what has been called synovial rheumatism, while it forms a connecting link between the two, and partakes of the characters of both, is more nearly allied to gout than it is to rheumatism.

When the patient is in bed the pains are usually much increased and warm or hot applications are also painful, and all motion is attended with an aggravation of pain. In most cases of acute rheumatism, there is more or less febrile excitement. The pulse, however, seldom exceeds 100 or 110 in the minute, but instead of the hardness which characterizes inflammatory fever, it is full, soft, and as it were, "*round.*" The skin instead of being hot, harsh and dry, is commonly in a state of profuse perspiration, and a remarkable acid odor in this secretion. The tongue is deeply coated. The papillæ appear elongated, and covered with a thick and abundant mucus. The functions of the brain are in a peculiar manner exempt.

Headache is seldom present in any form of rheumatic inflammation, acute or chronic, and delirium is almost unknown, there is often considerable thirst but rarely any nausea or vomiting.—The bowels are costive, though easily made to move. There is a sallowness in the aspect and a peculiar expression of the countenance, sufficiently distinct from that of common febrile anxiety.

Different as are the local and constitutional symptoms, from those of other phlegmasiæ, the termination of rheumatic inflammation is no less peculiar. The local inflammation may run high, but it never proceeds to suppuration. It is seldom, indeed, that any permanent injury is done to the joint; for if effusions of a transparent gelatinous fluid, into or around sheaths of tendons and the capsular ligament take place, they are commonly absorbed in a short time. The most important consideration in this view of the subject is, the disposition which exists in a state of acute rheumatism, to an affection of some internal organ by metastasis, or an extension of the inflammation, for it is not often that the joints are relieved when this change takes place. The organ most liable to be so affected is the heart, and it is from this occurrence alone, that any danger is to be apprehended in the progress

of the disease. The symptoms that result are those of common thoracic inflammation; the tendency to which, therefore, constitutes an important object of attention in the treatment of acute rheumatism.

No disease is more liable to relapse on slight occasions than acute rheumatism, . Going out a little too early in the open air; too much exercise of a particular joint, or an excess in diet, have frequently brought it back in all its former violence. Acute rheumatism is characterized also by a tendency to a recurrence after a long interval. Those who have once suffered from an attack of the disease, should therefore be particularly careful to avoid all exposure to the causes, and also obviate them by proper attention to clothing.

Children are very seldom the subjects of acute rheumatism.—It most commonly occurs from the age of puberty to the thirtieth or thirty-fifth year of life, and chiefly affects those of a sanguine temperament, robust form, and plethoric habit of body.

Chronic rheumatism is of more frequent occurrence than the acute, though it is often a consequent of it. The affected parts are commonly neither swollen nor red; nor is there often any manifest fever connected with the chronic variety of the disease; although quickness, tension, and contraction of the pulse are in some instances present in the evening and during the night. The pain often wanders from one part to another, fixing itself by turns, in the head, shoulders, knees, wrists, fingers, hips, loins, etc. Some individuals are hardly ever free entirely from pain, others are affected with it only occasionally on the occurrence of damp and cold weather. These last symptoms are particularly peculiar to that form of chronic rheumatism termed mercurial. After remaining at rest for awhile the patient feels a stiffness and pain on attempting to move the affected limbs; but on using exercise, until the body becomes warm, both the pain and stiffness may disappear. Those who are subject to this form of complaint, generally feel a dull, aching pain in one or more joints on the approach of stormy and rainy weather. There are three specimens of chronic rheumatism that it may be well to describe. The first is that which is connected with a state of febrile excitement in the system, and which may perhaps be designated by the term *subacute*. It is characterized by the pains often shifting their situation suddenly as in the acute form of the disease, and by their being increased by warmth, and especially at night by the warmth of the bed.

The frequent occurrence of œdema along with the affection of

the joints, may serve to distinguish this from the other species of the disease. Those joints which are the most constantly exerted are especially liable to it, such as the hip, the joints of the lumbar vertebræ. This state of chronic rheumatism is accompanied with a white tongue, thirst, a quickened pulse, and a costive state of the bowels.

The second species of chronic rheumatism is marked not by any degree of excitement in the system, but by the absence of constitutional symptoms. Here it is not unreasonable to believe that there may be a loss of tone in the vessels of the affected parts. It is not so common as the preceding species but it sometimes follows it. Stiffness of the joints is here the prominent symptom.—Sometimes the pain is only felt when the part is moved, or on occasions of changes in the heat or the moisture of the atmosphere. It is relieved rather than increased by the warmth of the bed. The pain and stiffness do not shift from joint to joint. Spontaneous coldness of the limbs and even a degree of paralytic torpor, are often complained of by the patient. The pulse is seldom quick, or the tongue white.

The third species of chronic rheumatism is attended with permanent derangement in the structure of the joint; and it is that form of disease which has been ably described under the title of nodosity of the joints. For here we find the ends of the bones, the periosteum, and ligaments become thickened, and nodes form upon them, often to such an extent as to distort the joint in the most unsightly manner. This form of rheumatism chiefly, or frequently affects the fingers, but it may be seen in the knees and ankles.

The periosteum in every part of its extent, the tendons and tendonous sheaths of muscles, the ligaments around the joints, the investing membranes of the nerves and of the teeth, and often the substance of the muscle itself or its cellular tissue are the seat of this disease. The sclerotic coat of the eye, which has a dense structure of an analagous kind, is subject also to a species of rheumatic inflammation. To distinguish this affection is by no means easy; nor is this the only instance in which chronic rheumatism has given occasion to difficulties in diagnosis. Lumbago has been mistaken for lumbar abscess; rheumatism of the intercostal muscles for pleurisy, and sciatica for ulceration within the cavity of the acetabalum.

Treatment.—As a general rule, we shall find constitutional treatment is indicated. Particular attention must be paid to the habits of the patient, and he must be careful to avoid all the excit-

ing causes ; due attention is to be paid to diet and exercise. More can be done in this way towards the relief of the patient than is generally supposed.

A great many different as well as discordant remedies have been used for the alleviation, or cure of rheumatism. Nothing, however, has sustained the character of an unfailing specific, though we have had several announced as such.

The application of cold water, or simply an envelope of wet flannel will afford relief, or, first steaming or applying the vapor to the affected part, and then pouring on the cold water, in many cases will do better. These means will be further promoted by frequent or occasional doses of the diaphoretic powders or some other pure stimulant, and if the patient is confined to his bed, a hot stone or brick should be placed near the affected part, not only with a view of promoting a healthy action in the diseased joint, but also of producing general perspiration, and giving energy and vigor to the whole system.

There are cases in which there is such a want of action and sensibility in the part, that it becomes insensible to the effects of the strongest stimulants ; where this is the case, we find but little effect produced by external stimulants; it is then necessary to relax the parts by the medicated vapor bath and apply the stimulating liniment before and after the bath. This will rarely fail to get up the necessary counter stimulation, and afford relief.

In most cases of inflammatory rheumatism, where there is fever, the cold water is almost a sovereign remedy, especially if you will administer some good stimulant at the same time. To strengthen and restore the weakened joint to its healthy state, after the pain and soreness have left it, the best means is to shower it with cold water and envelope it in flannel. If it is stiff, let it be bathed in liniment and often held over the fumes of bitter herbs.

In most cases of rheumatism, we shall find it necessary to give some internal remedy, and those that have been particularly recommended are Phytolacca Decan, (Poke) and the Macrotyis Rac, (Black Cohosh). We have seen the happiest effects produced with these articles. The tincture of the berries of the former and the decoction of the root of the latter.

During the interval between courses of medicine, or when courses are not administered, the patient should take freely of cayenne and bayberry, or composition, and broken doses of lobelia.—The compound lobelia pills are well adapted to the cure of rheumatism ; from two to five may be taken every hour or two as the case

may require. To promote perspiration, the patient should take of composition, pepper, or simple herb teas. In many cases the compound lobelia pills, used freely, will supply the place of all other medicine. Many cases of acute rheumatism have been cured by the lobelia pills alone, not even using the vapor bath. They should be taken in sufficient quantity to excite vomiting at least once a day. No other compound appears to be so well adapted to the cure of acute or inflammatory rheumatism as the compound lobelia pills. Keeping the system constantly under the influence of these pills will relieve pains. And although the patient may complain of the sickness from the pills, he should be reminded that the sickness facilitates the cure.

Injections are beneficial in all cases. When the rheumatism is principally seated in the lower extremities, injections of the third preparation, or of some form of lobelia, in the No. 3 tea, are especially demanded. The circulation in the lower extremities is to a greater or less degree influenced by stimulating injections.

From a half to a teaspoonful of lobelia powder administered by injection and retained, and thus repeated every few hours, will prove eminently beneficial in many cases, but more particularly where there is high fever and violent pain.

The parts affected by rheumatism possess a low degree of sensibility in health, but when they become so much diseased as to excite reaction and occasion inflammation, it frequently requires several weeks before the parts are restored to a healthy condition, even under the most judicious and persevering course of treatment. The condition of the stomach, bowels, and liver, influences in a great degree both the violence and duration of rheumatism.

The Practice of the Old School, has been to bleed in all cases of acute, and many of the chronic forms of this disease, but we are happy to know that a more rational plan, is now quite prevalent. Every symptom proves clearly that chronic rheumatism is a form of disease of great debility, and the stimulating mode of treatment, we have recommended, is founded on this idea; observation has also taught us, that acute rheumatism is soonest removed by sudorifics.

The slight fever attendant on rheumatism should always be supported and encouraged, as it is generally accompanied with sweatings, which Dr. Good says "seems to be an ineffectual effort of the *instinctive principle*, or remedial powers of nature, to carry off the complaint, and he also further adds: It is by this evacua-

tion alone that we can at length succeed in effecting a cure."—Hence we conclude that practice a good one, which promotes perspiration, by opening the pores of the skin and exciting it by the administration of diffusive stimulants or diaphoretics. Pepper poultices will sometimes be indicated, also in cases of long standing, where there is much rigidity of the parts, the galvanic battery, or the electric shock will be found valuable.

We cannot reprobate or censure the Old School practice too much, where they recommend Colchicum, Mercury, Arsenic and Stramonium. Let no one of these be administered under any circumstances, for full well we know, that where the powerful, yet harmless means we have laid down shall fail, the use of these pernicious poisons can do no good. We must also be equally severe on the use of the moxa, croton oil and tartarized antimony as external remedies. If our pure stimulants fail, these irritating corrosives will do no good.

Alteratives are indicated in somes cases, especially in chronic forms where the blood is vitiated, and the whole system is implicated. The Sarsaparilla and the Burdock and other tonic diuretics are to be used.

Mustard seeds, onions and horse-radish are family remedies that are often used with success.

One of the best internal stimulants, in a case of this sort, is the ammoniated tincture of guaiacum. Guaiacum is a stimulating diaphoretic, and is very useful in this form of rheumatism, though it is of no service in the active form of the complaint. The tincture made with aromatic spirit of ammonia, produces great warmth; and the patient remains warm for a longer or a shorter time. This is a medicine that may be given in various doses.—Some persons are made hot with thirty drops; but others will take a drachm; and we have seen some who have taken six drachms, three or four times a day. There is no rule for it, but we should begin with half a drachm; and, as long as the patient is not warmed by it, and does not find it irritate him, we may increase it. Sometimes the warmth will last for one, two or three hours; and, from a proper course of it, we shall find great alleviation.—Sometimes it purges; sometimes it irritates the skin, and produces the nettle-rash; but then internal stimulants are necessary in rheumatism, and we think this is one of the best.

Whenever there is any tendency to a metatasis of this disease to any of the vital organs, the most energetic treatment is to be

used to keep up a termination to the surface and to equalize the circulation.

For Lumbago, the turpentine or some Balsamic diuretics are found to be particularly indicated.

In acute rheumatism the Botanic practice is very certain to affect a cure sooner than any yet known. We have treated several cases, and while we have in no one case failed to cure our patient, we have at the same time, saved a great deal of pain and suffering to our patients from protracted illness. Dr. Thomson assures us that a cure is easily affected, if timely and properly attended. In common cases, says he, "taking the rheumatic drops, and bathing the affected parts with the same, will remove the complaint."—When the case is bad, carry the patient through a course of medicine, and bathe with the drops, repeating it as the case may require ; at the same time, give a tea of poplar bark, or hemlock boughs, and many other articles which have been recommended as good for this complaint, may also be made use of to advantage. When the joints of the extremities swell much, and are highly painful, they must be poulticed as long as the soreness and pain remains. We must rely more confidently upon constitutional remedies than local applications ; yet, we strongly recommend local treatment in the cure of acute rheumatism. In all cases the vapor bath is very appropriate, and combined with diaphoretics, will in no case fail to prove highly beneficial.

The iodide of potassium has been highly recommended within the last few years, and is not particularly objectionable. A few grains, from 20 to 30 grains, put into a quart of any alterative syrup or preparation will be sufficient, where the dose of the preparation is two or three tablespoonfuls three times a day.

The following is a good remedy : Ex.-Phytolac, dec. (Poke), Virgin Turpentine, each 20 grains ; Macrotin (black cohosh) 20 grain made into 20 pills and four to six taken at night. Dennis' Alterative is also valuable.

PODAGRA—GOUT.

Description and Causes.—The technical name for this disease is derived from two Greek words ποδ *the foot* and αγρα *a seizure.*

Closely allied to acute *rheumatism*, and yet distinct from it, is this singular disease which is popularly called the *gout;* which

Cullen, in the first instance, was disposed to term arthritis; but as arthritis would imply inflammation of all or any of the joints, he afterwards adopted the ancient name of *podagra* (foot-pain.)

The same author has given, in his first lines, an excellent account of the phenomena which constitute a paroxysm of gout. It is copied from Sydenham, who drew from nature; for he had himself suffered frequent and severe visitations of the disease during a period of thirty-four years.

The predisposition to gout is disclosed sometimes by the physiognomy of the individual, and by his physiological states, but on these indications we cannot much rely without a knowledge of the commemorate signs, deduced from an inquiry into his habits and descent.

"The gout generally attacks those aged persons," says Sydenham, "who have spent most of their lives in ease, voluptuousness, high living, and too free a use of wine, and other spirituous liquors, and at length, by reason of the common inability to motion in old age, entirely left off those exercises which young persons commonly use. And further, such as are liable to this disease have large heads, and are generally of a plethoric, moist, and lax habit of body, and withal of a strong and vigorous constitution, and possessed of the best *stamina vitæ*.

"The gout, however, does not only seize the gross and corpulent, but sometimes, though less frequently, attacks lean and slender persons; neither does it always wait till old age comes, but sometimes attacks such as are in the prime of life, when they have received the seeds of it from gouty parents, or have otherwise occasioned it by an over-early use of venery, or the leaving off such exercises, as they formerly indulged to a great degree, and who besides have had voracious appetite and used spirituous liquors immoderately, and afterwards quitted them of a sudden, for those of a thin and cooling kind."

The strumous diathesis is said to give a predisposition to gout; and hence they who in early life are in danger of scrofulous deposit are, at a later period, if they have enjoyed ease and repletion, liable to gouty inflammation. Dr. Prout, perhaps, states the proposition too broadly, although numerous instances might be adduced in its support, when he says: "Thus gout and struma are frequently, if not always associated; and the gouty chalk stones of old age may be considered as little more than modification of the scrofulous tubercle of youth, both being alike formed from the mal-assimilation of the albuminous principle." The simple lym-

phatic temperament, the basis of the strumous diathesis, is not enough, however, to give the gouty predisposition without a strong nervous modification approaching to the irritable. A full copulent frame of body is the most common in gouty subjects, more particularly of those who procure for themselves without derivation from ancestry this supposed badge of gentility.

There is a pattern of body which is believed to be favorable to the acquisition of gout. "It attacks especially men of robust and large bodies, men of large heads, of full and corpulent habits, and men whose skins are covered with a thicker *rete mucosum*, which gives a coarser surface.

Whether, in a given individual, there be an inherited tendency to the disorder or not, its access is promoted in a remarkable manner by a full and luxurious mode of life, and by sedentary or inactive habits.

It is observed of gouty persons, that they are usually subject to nephritic complaints also, to fits of the gravel, to renal and vesical calculi. These disorders of the urinary organs commonly begin to manifest themselves after the gout has plagued the patient for some time. They do not coincide with the paroxysms of gout, but the two happen alternately: or (what is equally expressive of the connection between the two forms of disease) the children of gouty and nephritic parents inherit often the one or the other of these maladies; but "whichever may have been the principal disease of the parent, some of the children have the one, and some the other. In some of them the nephritic affection occurs alone, without any gout; and this frequently happens in the female offspring of gouty ancestors.

The urinary concretions to which gouty people are so subject, and the morbid states of their urine generally, belonging to the *lithic* diathesis. Dr. Prout holds that "the lithic acid, developed principally during the mal-assimilation of the albuminous textures, may be considered as the characteristic feature in gout." And the chemical composition of the chalk stones which sometimes accompany gout, is in accordance with this statement; and illustrates strongly the connection between gout and gravel. The so-called chalk stones consists mainly of lithic acid combined with soda; of the lithate or sulpherlithate of soda. Sometimes this very lithate of soda, perfectly white, is deposited in large quantities in the *urine*. Dr. Prout says that he has seen it copiously secreted of the consistence of mortar, so as to block up the urethra in its passage outwards. Now this is just the stuff which deposit-

ed around, and sometimes within the joints, and which hardens as it collects.

Gout attacks especially the male *sex*. Some few women, however, suffer it, in its regular and decided form; and generally these women are robust and plethoric. Cullen noticed its occurrence in several females whose menstrual evacuations were more abundant than usual. But the disease chiefly happens in women after the catamenia have ceased to appear. Heberden knew a female who had numerous sores from chalk stones.

Cullen observes that the gout does not usually come on till after the age of five and thirty. Heberden, who in his long and extensive practice among the higher classes of society, saw as much of this disease as any physician ever did, says, that he never met with a case which he could decidedly pronounce to be gout, before the age of puberty.

Gouty persons are subject to various ailments, which spring from the same fountain as the well-marked paroxysm: derangements in the functions of the digestive organs of the heart and lungs, of the brain and nerves.

A fit of gout may be brought on by various circumstances: in other words, the possible exciting causes of gout are many. A paroxysm has been frequently known to follow immediately upon an unusually severe debauch. Strong mental emotion has sometimes the same consequence, especially emotion of a depressing kind. Excessive fatigue—more particularly fatigue produced by too much walking exercise on one day—is another exiting cause. And this is unlucky, for it often discourages a patient from again making use of a proper and even necessary amount of exercise of that kind. Another exciting cause which frequently operates is external injury. The first attack of gout often fixes upon the seat of an old hurt: and a very slight recent injury is sometimes enough to determine a paroxysm—a trifling bruise or sprain, the pressure of a tight shoe; nay, Dr. Heberden tells us that he verily believes he has seen an attack of gout brought on by the bite of a flea; showing how easily the disease may be excited, when there is a strong predisposition to it. This it is which makes us so often doubt the accuracy of gouty persons, when they tell us that they are lame from a sprain.

Dr. Cullen enumerates sundry debilitating circumstances which, as such appear to operate in calling into action the gouty disposition. And there can be no doubt that a state of weakness does often favor the eruption of the malady.

Diagnosis.—The attack begins, most commonly, an hour or two after midnight. The patient, who had gone to bed and to sleep in his usual health, and without suspecting what was about to happen, is awakened by a pain in one of his feet, mostly in the first joint or *ball* of the great toe; but sometimes in other parts of the foot—the heel, the instep, the ankle. With the coming on of this pain there is generally more or less of a cold shivering, which gradually ceases as the pain gets worse, and is succeeded by heat. The pain grows more and more violent and intolerable; and is spoken of by those who suffer it, as amounting to torture.—It is a grinding, crushing, wrenching pain; or a burning sensation as if a hot iron were pressed into the joint. Some humorous Frenchman described it in this way. "Place (said he) your joint in a vice, and screw the vice up until you can endure it no longer. That may represent rheumatism. Then give the instrument another twist, and you will obtain a notion of the gout." The pain is attended with great restlessness and misery, and exquisite tenderness. The patient cannot bear the weight of the bed-clothes upon the affected limb; nor the jar of a heavy foot-fall in his chamber. In a vain search after comfort he is perpetually shifting his foot from place to place, and from posture to posture. At length, about the ensuing midnight, the pain remits; sometimes gradually, sometimes so suddenly that the patient attributes the relief to his having at last found an easy position. He falls asleep in a gentle perspiration, and when he wakes the next morning he finds the part, which had been so painful, to be red, swelled, tense and shining, surrounded by more or less œdema, and by turgid veins. The same series of symptoms recur, in a mitigated degree, for some days and nights; and then the disease often goes entirely off, not to return until after a long interval.

As the œdema subsides, and the redness fades, the cuticle of the part that has been inflamed peels off; and this process of desquamation is generally attended with troublesome itching.

Such is a picture of an attack of gout, occurring in an adult subject, for the first time, and in its most regular and genuine form.

Attacks of this kind are preceded, in most instances, by some marked disorder of the functions of the stomach; diminished appetite, flatulence, heart-burn, nausea perhaps. And during the paroxysm the urine is very high-colored, and acid, and turbid; depositing a copious pink, or brick-dust sediment. The stools also, are unnatural; pale, or of a dark-green, and very offensive.—

After the fit, when the complaint has ceased entirely, it generally (says Cullen) "leaves the person in very perfect health; enjoying greater ease and alacrity in the functions of both body and mind, than he had for a long time before experienced."

Pains have been taken by several writers, especially by Heberden, to lay down the distinguishing characters between gout and rheumatism. A first assault of gout can scarcely be confounded with an attack of acute rheumatism. The limitation of the inflammatory redness to one foot, and the restless distress of the gouty patient, contrasts strongly with the helpless and motionless condition of the rheumatic, who is pinioned, so to speak, in many limbs. There may be more room for doubt and mistake in the advanced state of gout, when many joints have at length become involved; but even then you may generally decide by inquiring into the history of the patient, and learning the circumstances of his early attacks.

The main points of distinction may be broadly and generally stated thus:

In gout the small joints are first and chiefly affected, especially the joint of the great toe: in rheumatism the large. The redness of the gouty inflammation is more bright and vivid than that of the rheumatic; and the fluctuations between agony and ease are greater and more frequent. Gout usually affects one joint only at a time; rheumatism often many at once. The inflammation in gout is attended with more œdema than in the rheumatism; and is followed, in the majority of instances, by desquamation and itching, phenomena which we do not notice at the close of rheumatic inflammation. Gout is not attended with those drenching acid sweats which are so characteristic of acute fibrous rheumatism. The gout is decidedly hereditary: rheumatism, if hereditary at all, is much less distinctly so. The gout occurs rarely or never, whereas rheumatism is not very uncommon, before the age of puberty. In gout, though many functions suffer, there is no tendency to carditis: in rheumatism, with far less general disturbance, that tendency is very marked. Gout is the punishment (some have thought it the privilege) of the rich, of persons who live fully, luxuriously, and idly; rheumatism is most frequently the appanage of the poor, and of those who toil.

They, who have had one attack of gout, can generally prognosticate, with some degree of accuracy, from their feelings, that another approaches; but at times, and especially in the first fit, the immediate invasion of the disease is not preceded by any

warning. This has been doubted, and it has been affirmed, that the warning probably existed, but was not heeded, but there is no doubt, that the paroxysm of acute gout may supervene very suddenly, and occasionally, very unexpectedly, in the midst of robust health; nay, it is affirmed by one writer that almost always, on the evening before the attack, the patient has a better appetite, and unusual feelings of health.

Treatment.—The treatment we recommended for rheumatism, will generally be applicable in this disease. Purgatives rank high among the curative means in gout. The Apocynum, (Bitter Root,) the Podophillin, (Mandrake,) and the Phytolacca, (Poke Root,) are the best articles to use; prudence being used in their administration, that they do not act too powerful, so as to debilitate the patient.

Cullen came to the conclusion that the best thing to be done in this disease, is to commit the sick man "to patience and flannel alone," but the Reform Practice can do better than this; we seldom fail in affording relief.

It is dangerous to apply cold to the parts, during an attack of gout. Some have done it; and Harvey, who discovered the circulation of the blood, was accustomed (when an attack came on) to plunge his feet in a pail of cold water; but no medical man is justified in recommending it; for it has frequently happened that some disease has suddenly begun within. There has been apoplexy induced; or violent gastrodynia; or an affection of the heart; and the patient has died very shortly. If the patient chooses to do it on his own risk, he may; but he ought to be warned of the consequences by his medical friend.

In regard to the regimen, that ought to be used by those who are subject to attacks of gout, much must be left to the judgment of the practitioner, as respects the constitution and the habits of the patient. Nothing is more clear, than that there can be no plan, which is equally applicable to all. If one element in the causation of the disease be, "the supply of nutritive materials in greater quantity than the process of decomposition can remove them," it is obviously important to diminish this supply. With this view, in the generality of cases certainly, it is of moment, that the amount of nutritive aliment should be restricted within proper limits; these limits being regulated, however, in some measure, by the previous habits of the patient. If a person has been accustomed to full living, and to a certain allowance of generous wine, it can never be proper to withhold these altogether.

There are many persons who experience an attack of gout whenever their amount of stimulating diet is largely reduced, and who retain their health, provided it is allowed in moderation; and it has been already remarked, that depressing influences of all kinds are common excitant causes.

In regard to the precise diet, the remarks that have been made under Dyspepsia, are equally applicable here. Whatever disorders the stomach may lay the foundation of a gouty paroxysm, and hence all aliments which disagree by their quantity or quality, must be carefully avoided. Impropriety in eating may be almost as injurious as impropriety in drinking. As respects wines, much depends upon the habits of the patient. Port wine is proverbially gouty, and so is Madeira.

The lighter wines of France, of the Rhine and the Moselle are drunk freely by the inhabitants of the countries in which they are made, and they certainly are not as liable to gout as where the stronger wines are taken. Of these stronger wines, the least objectionable, perhaps, is sherry, which may be taken in moderation by the valetudiniarian who has been accustomed to his glass of wine after dinner; but if any stimulus be needed, a little weak brandy and water, is, perhaps, preferable.

Regular exercise on foot, short of inducing fatigue, attention to the condition of the digestive function, and travelling, air and exercise—the adoption, indeed, of all the recommendations given under the head of Dyspepsia—should be inculcated.

The proximate cause of gout has been studiously investigated by almost every writer upon the subject.

The doctrine which we believe correct is, that gout depends upon a certain morbific matter, almost always present in the body, which thrown out upon the joints, or other parts, produces the several phenomena of the disease. This being granted, the way is evidently paved for the practitioner. Every true Medical Reformer is well acquainted with the process of removing from the system morbific matter. If the morbific matter is situated in the stomach, blood, or elsewhere, it can be very readily removed by common courses of medicine, and the only reason why the Allopaths have failed in all cases to remove the morbific cause of gout, has been from the fact, that they had not the knowledge of a suitable remedy.

It must not be forgotten that a close affinity subsists between gout and rheumatism; it may be traced in the identity of the structures which are attacked, in the similarity of the terminations

of the two forms of disease, and in their mutual tendency to affect some internal organ by metastasis, and hence the similarity of the practice. There can be a very slight variation in practice, only, as the indications to be answered are nearly the same in gout as in rheumatism, and for the general treatment, we beg leave to refer the reader to our treatment in the latter form of disease. We beg leave, however, to repeat in this place, that the most *thorough* courses, and too, applied daily, will be found much more efficient in gout than mere defensive or milder measures.—During paroxysm of the gout, the treatment must be active and appropriate; after they have subsided, the remaining duty to be performed is, the restoration of the healthy state of the digestive functions, and of due strength in the weakened limbs. If there is a translation of the disease from the extremities to the head, so as to threaten apoplexy or palsy, the treatment must be the vapor bath to the lower extremities, the head bathed in cold vinegar, and diffusive stimulants and other remedies which will determine the blood to the extremities. In short, the treatment must be the same as is recommended in cases of apoplexy and palsy.

Where the gout attacks the lungs and produces asthma, the treatment must be precisely that which is recommended for the cure of asthma, a very free use of anti-spasmodics.

The efforts of the practitioner should be steadily exerted during the intervals of the paroxysms, to prevent their occurrence by a due attention to the predisposing and exciting causes.

Thorough courses of medicine, mild aperients, sudorifices, and the free use of tonics, with the strictest attention to what has been said of food and exercise, may be confidently relied on.

When the stomach or kidneys become affected with gout, the same general course of treatment, as already described, must be adopted. The stomach in these cases, however, is very often almost insensible to the impression of stimulants, requiring large and frequently repeated doses of the 3d preparation of lobelia, or some other form of active stimulant, in order to produce the effect desired. Hot stimulating poultices should be applied over the seat of the pain, and the steam bath administered as hot as the patient can bear. Injections must be employed. They should be made active with cayenne and lobelia, or the 3rd preparation, and administered frequently.

FEVER.

General Observations.—The theoretical part of this work having treated extensively of Fever and Inflammation, it is only necessary for us in this place to describe the several forms of fever, the symptoms attendant on these grades, and the treatment necessary to cure.

Idiopathic fevers have been variously divided and subdivided, and have received a great diversity of names, according to the views of different writers. Thus we have *intermittent*, *remittent*, and *continued* fevers; *synocha*, or *inflammatory fever; typhous; asthenic*, or *adynamic fever;* and *synochous* or mixed fever, beginning as *synocha* and ending as *typhous*. To these, *congestive fever* has been recently added. But these diversities have reference merely to difference of form, grade, or type, and any one fever, that is, any febrile disease distinguished from others by the nature of its cause, may have all these different characters. Thus, the same fever, produced by the same cause, may be in different individuals, or in the same individual under different circumstances, either intermittent, remittent, or continued, inflammatory, typhous, synochous, or congestive. Again, many distinct fevers have been made out of accidental complications; such as *gastric*, *gastro-enteric*, *hepatic*, and *cerebral* fevers, so called in consequence of the predominance of disease in the several organs which gave origin to the names. This nomenclature so far as it has been applied to idiopathic fevers generally, is incorrect; as it would seem to imply some essential difference between the diseases thus distinguished, whereas they may be absolutely the same disease, merely diversified by the occurrence of inflammation or irritation in one organ rather than in another. But, in very many instances, the diseases named as above have been nothing more than cases of phlegmasiæ, and would have been more properly entitled gastritis, gastro-enteritis, hepatitis, and encephalitis. It appears that, in the arrangement of fevers, we should endeavor to find out some essential difference between them, something which characterizes them as distinct diseases, peculiar in their phenomena and nature, and incapable of being converted into one another. Now such a basis of arrangement is offered in the peculiarity of the cause. Upon examining the various fevers considered essential or idiopathic, we find that, as a general rule, certain individuals are produced by one cause, others by another, others again by a third, and so on through almost the whole list; and we find,

further, that those produced by one of these causes cannot be produced by another, each set requiring its own particular cause. Here, then, is an excellent, and, as it appears, quite unobjectionable ground of association. The cases produced by the same cause may very properly be treated as belonging to the same disease; and any incidental peculiarities of form, type, etc., should serve only as the ground of varieties. These different forms have only one thing in common; namely, that all are attended with that proximate constituent of disease, called abstractly fever, or febrile movement.

Prof. Powell, in his Practice, has given the correct reform ideas of Fever, etc. We quote from him for the remainder of these general observations.

The opinions upon the nature and character of fever are about as various and as numerous as have been their many writers, and if we commence their investigation with Hippocrates, who lived 361 years before the Christian era, and who was probably the first systematic writer on the subject, we shall find them, as we travel down to the present time, to depart more and more from our conceptions of the truth.

He regarded the human system as being under the direction of a conservative, and in some sense, intelligent principle which he denominated *nature*. Under such a conviction he must have believed that pathological manifestations were governed by laws as fixed and as determinate as those of gravitation—that all pathological action is just as legitimate and as normal, under the circumstances, as any purely physiological one. This inference from the preceding premise, is completely sustained by his opinion of disease, as set forth by the Edinburg Practice, Vol. I, page 6; viz: "He imagined disease to be only a disturbance of the animal economy, with which nature was perpetually at variance, and using her utmost endeavors to expel the offending cause."

In this simple, consistent and beautiful faith, he appears to have been well grounded; for Dr. Thatcher, page 4, says, that "he studied and copied nature with the greatest care and assiduity, as the only sure basis of medical science; and so extensive was his knowledge, and so accurate were his observations, that he has been constantly held in veneration through succeeding generations." From existing indications, it would seem, however that "succeeding generations" venerated him, not because of his talents or the accuracy of his observations and discriminations, but as they generally do an old antiquated ruin—a proper veneration

would have dictated a closer conformity to the immutable and salutary laws which he was the first to discover and proclaim.

We have remarked, in one of the preceding books, that the animal system, as a machine or organization, does not act intelligently, but in accordance with the laws of the pre-existing intelligence which designed it. Between this opinion and that of Hippocrates. there is not, practically, a shade of difference, and it is to be presumed that no one can be found who is so much of an accidentalist, as to deny that the human organization, either in the abstract, or in its relations with the external world, does indicate wisdom or intelligence in its design. If this conclusion be admitted as correct, then it follows that Hippocrates was in the possession of a great discovery, when he remarked that "Nature cures disease"—that is, disease is removed from the system by the agency of those laws of the organization which exist and act in conformity with a wise or an intelligent design. It follows again, with equal conclusiveness, that man has no power to cure disease —he can only aid "*nature*," by acting in conformity with her laws, and when he acts otherwise, he is sure to defeat her intentions. This conviction should be ever present in the mind of every physician, when at the bedside of the sick.

We have examined very many of our standard and most distinguished authors on the pathology of fever, but our taste, judgment, prejudice, partiality, or whatever else it may be, is too fastidious to adopt or indorse any opinion we have found, except that of John Hunter in the abstract, and that of Tissot, in connection with its treatment. The former says, that "fever, in all cases or of all kinds, is a disturbed action, like inflammation itself." And "inflammation," he says, "is not to be considered a disease, but as a salutary operation either to some violence or some disease."—He again remarks, that "pure inflammation is rather an effort of nature than a disease. Then, according to Hunter, we may say that "pure" fever "is rather an effort than a disease;" and consequently as fever is but action, all fever must be pure.

The latter author, Tissot, says, that "a fever, therefore, that has a quicker pulse than natural, and an increased degree of heat, is always salutary with respect to the morbific cause; for the effect of the morbific cause is excellently fitted to remove the cause itself. Hence a fever is justly defined by the celebrated Sydenham, to be a "vigorous effort of nature to throw off the morbific matter, which is extremely inimical to the human body, and thus recover the patient."

"A fever, therefore, which is not too violent, but suited to the morbific causes, ought not to be extinguished, if it could be done, but rather kept up to promote their expulsion."

Having made these general remarks, we now proceed to describe the various forms of Fever under the following heads, viz: Intermittent, Remittent, Yellow, Typhoid and Typhus.

INTERMITTENT FEVERS.—FEVER AND AGUE

Description and Causes.—This disease is characterized by febrile paroxysms, recurring at stated times, and by the absence of fever between the paroxysms. The intervening period, from the end of one paroxysm to the commencement of the next, is called the *intermission* or *apyrexia*; the whole period occupied by one paroxysm, and the succeeding intermission, is called *the interval*.

The type of the fever has reference to the length of the interval. There are three ordinary types; the quotidian, tertian and quartan. In the *quotidian*, the paroxysm recurs every day, with an interval of about twenty-four hours; in the *tertian*, every other day, with an interval of forty-eight hours; and in the *quartan*, every day, with an interval of seventy-two hours. The inventors of the two latter names considered the two nearest paroxysmal days with the intervening day or days, as constituting one period, and thus counted every paroxysmal day twice in the succession.—Other types are mentioned by authors; such as the *quintan sex*, *tan*, *septan* and *octan*, the last occuring at intervals of a week; but they are all very rare; and there are probably few physicians who have seen any one of them.

The regular types above mentioned are liable to numerous diversities. The *quotidian* is sometimes *double*, having two paroxysms every day. There is a *double tertian*, with a daily paroxysm, but occurring at different periods, or with different characters, on successive days; the paroxysms of alternate days exactly corresponding with each other. Thus, on the first and third day, the paroxysms may take place in the morning, and correspond with each other in grade and character; while on the second and fourth day, they shall occur in the afternoon, and in like manner correspond with other, but differ from those of the two other days. It thus appears that two tertians are going on at the same time, but

at different periods of the twenty-four hours. Sometimes there are two paroxysms in one day, and none in the next. This variety is distinguished by the name of *duplicated* or *double tertian.* The *triple tertian* has two paroxysms every other day, and one in the intervening day; that is three instead of one in forty-eight hours. The *double quartan* is the variety in which, out of three days, two have each one paroxysm and the other none; the *triple quartan*, that in which there is a paroxysm every day, but the three successive paroxysms differ from each other, while they correspond respectively with the three which follow. Other varieties are mentioned by writers, as the *tripled* and *quadruple tertian* and *doubled* and *triple quartan*, etc., etc.; but these distinctions are mere refinements, of no practical value, and exceedingly rare in nature, if, indeed, they have any other foundation than in the imagination of observers. Of all the varieties above enumerated, the double tertian is the only one which often occurs. It is said that cases have been noticed, in which the paroxysms are altogether irregular. These are distinguished by the title of *erratic* intermittents.

Of the intermittent fever here treated of, miasmata are the essential cause. Some have supposed that all cases of intermittent fever have the same origin. Experience, however, is opposed to this opinion. We every now and then meet with instances which can by no possibility be traced to miasmata. Indeed, cases sometimes occur which proceed obviously from some temporary irritation, such as the introduction of instruments into the urethra, indigestible food in the stomach, worms in the bowels, etc. The case of M. Brachet is interesting, as tending to show that habit may have the same effect. M. Brachet for seven successive nights, at midnight, bathed in the river Saone, towards the close of October, when the water was cold. Retiring to bed after each bath, and covering himself warmly, he was affected with considerable reaction, which terminated in perspiration. At the end of the seventh day, he omitted the practice, but was nevertheless nightly, about the same hour, attacked with a regular intermittent paroxysm, consisting of the cold, hot, and sweating stages, which returned for about a week, when it ceased spontaneously upon the occurrence of an event which kept him out of his bed at the hour, and induced him to take a ride on horseback, which excited and warmed him. But cases of pure irritative intermittent are probably rare; and the presumption, when we meet with a case of ague and fever, is that it is miasmatic.

Intermittent, being the mildest form of miasmatic fever, is that which ordinarily occurs in situations, and at periods, when the miasmatic influence is least intense, and in persons who from habit, or any other cause, are least susceptible to injury from it. Though this particular cause may be essential, yet there are others which very much assist its action. The poison seems to find a more ready entrance into the system, when exhausted by fatigue or hunger, debilitated by previous disease or mental depression, and during sleep. It often lurks in the system without obvious effect, for a longer or shorter period of time, causing rather a predisposition to the disease than the disease itself. Under these circumstances, any exciting cause may call the fever into action; and sometimes an attack is produced, which might otherwise have been avoided. Exposure to the heat of the sun, a cold bath, excessive exertion, mental excitement, even a dose of purgative medicine, may thus give rise to a paroxysm. The contrast between the cold of the mornings and evenings and the heat of the middle of the day, favors the developement of the disease in the latter part of summer, and the beginning of autumn. Persons removing from a miasmatic region to a healthy one are often attacked, in consequence probably of the new and excitant influences to which they are exposed.

The disease is most common in the latter half of summer, and in autumn before the occurrence of severe frost. Sometimes it seems to occur epidemically, making its appearance in situations where it was before almost unknown, and spreading over considerable districts; but still showing itself at the same season of the year. In the United States, it is occasionally met with in almost every part of the country where there are water and vegetation, except in certain mountainous regions, and through the greater portion of New England, where it is scarcely known. In Europe its northern limit is stated to be the 60th or 61st degree of north latitude. It occurs occasionally in the vicinity of Stockholm.

The time at which the disease attacks, after exposure to the miasmatic cause, is altogether indefinite. It may occur in a few hours, or not for weeks, or months. There is reason for the belief that the cause may remain latent for a year or more, until called into action by favoring circumstances.

Infants and old people are less frequently affected than those of intermediate ages, and women less than men, probably because they are less exposed to the cause. Children are certainly liable to it at the tenderest age, and it is thought to have attacked the

fœtus in the womb, as indicated by the periodical trembling in the uterus, of which the mother, when herself the subject of the disease, has been sensible in the interval of her own paroxysms. Negroes are much less susceptible of the disease than whites.

Although *koino-miasmata* may be regarded as incomparably the most frequent cause of intermitting fever, yet various other causes may, under favorable circumstances, give rise to this form of fever. Richter observes, that worms and other causes of intestinal irritation have been known to produce intermitting fever. He mentions, also, suppressed catamenia, and hemorrhoida-discharge, as well as the drying up of old ulcers, as occasional causes of intermitting fever. We have seen one instance, in a delicate child, where a distinctly formed ague was manifestly produced by intestinal irritation from too free an indulgence in irritating articles of food. An interesting case is related by Mr. Earle, in which a regular intermittent was produced by the irritation of a small piece of dead bone in an old wound, and which was at once arrested on removing the irritating substance. It would seem that either the generation of miasmata, or their power of producing intermitting and remitting fevers, is greatly controlled by certain occult conditions, wholly unconnected with any appreciable circumstances, with regard to atmospheric temperature, or any of the other known requisites for the production of this poison. In certain districts of the temperate latitudes, malarious fevers will sometimes disappear, or become extremely rare for a number of successive years; and then generally become more and more common, until, in the course of a few seasons, they assume the prevalence of disease, in relation to what are deemed the necessary concomitants for the production of miasmata.

Proximate Cause.—In relation to the proximate cause of this form of fever and of its periodicity, morbific materials collected in the system must be said to produce obstructions which act most assuredly as the proximate cause of this disease; if this is not so, we may at once confess our entire ignorance; for all that has hitherto been advanced in relation to these mysterious subjects, amounts to nothing more, at best, than some ingenious conjectures and hypothetical speculations, with a great deal of crude and absurd reasoning and idle suppositions. As to the sentiments of Broussais, which place the proximate cause of this and all other fevers in an inflammation of the mucous membrane of the alimentary canal, it can neither be profitable nor interesting to repeat again what has already been advanced in refutation of its correctness.

Diagnosis.—Each paroxysm of an intermittent, when quite regular and fully formed, consists of three stages; viz: the *cold*, the *hot*, and the *sweating* stage, which usually succeed each other in the order mentioned. Very often, the paroxysm is preceded by the ordinary preliminary symptoms of fever, such as feelings of languor or weariness, general uneasiness, stretching, yawning, etc; and occasionally these feelings, with perhaps some pain in the head and back, impaired appetite, and a scarcely observable degree of febrile excitement, constitute the whole apparent disease for several successive paroxysms. A person is seized with the above symptoms, or something like them, which, after a few hours, pass off, almost without notice, and are, perhaps, quite forgotten, until upon their recurrence the next day, or the day after, or upon a third occasion at the same interval, and each time with increased severity, the patient is reminded of the preceding attacks, and finds himself, or is informed by his physician that he is laboring under intermittent fever. Attention to these imperfectly formed preliminary paroxysms is important; as the disease may be arrested by the adoption of proper measures at this early stage, and much subsequent inconvenience and discomfort spared the patient. Sometimes, however, the first regular paroxysm seizes the patient in the midst of apparently good health, and without warning.

After some yawning, stretching, etc., the patient experiences sensations of chilliness, especially in the limbs. These increase, and gradually spread over the whole body, becoming often severe and distressing. Not unfrequently, the chilliness seems to run in longitudinal lines, as if little streamlets of ice cold water were trickling down the trunk. Along with this, the patient experiences shivering or trembling; rapid and successive shudders run through the frame; the teeth often chatter, sometimes loudly; and the bedstead is occasionally shaken with the violence of the involuntary movements. These tremors, in connexion with the sensation of cold, are technically denominated *rigors*. The body often feels cold to an observer, especially the hands, feet, nose, ears, and cheek; but this is by no means uniformly the case.—Sometimes the surface is hotter than in health, even when the patient experiences a feeling of severe cold.

In connexion with the sensation of coldness, the surface is pale and contracted, and not unfrequently presents the rough appearance known under the name of goose-flesh, which is owing to the projection of the sebaceous and capillary follicles, while the prop-

er tissue of the skin shrinks. From the same cause, the hair sometimes bristles, as in fright. The hands are shrunken, the features contracted, the countenance pale, and the lips and ends of the fingers often purplish, or somewhat livid.

Though the tongue is pale and moist, there is often thirst; all disposition for food is lost; and occasionally nausea, and vomiting of food, mucus, or bilious matter are experienced. The breathing is irregular, and often hurried; and the patient has a feeling of oppression or weight in the epigastrium or chest, which causes him to sigh deeply. There is sometimes also a short, dry cough. The pulse is small, in some instances quickened, even very much so, in others slow, often irregular and feeble. The secretions are generally scanty; but the urine is usually pale, limpid, and copious.

The nervous system is much disordered. Independently of the tremors already alluded to, there is often severe pain, of a neuralgic character, in the back, loins, and extremities, and sometimes in the head. The temper is not unfrequently irritable, and the mind confused, dejected, and sometimes even wandering. Occasionally there is drowsiness, which, in some rare instances deepens into stupor, coma, and even symptoms of apoplexy.

The duration of the cold stage varies greatly. Sometimes it does not exceed a few minutes, sometimes extends to three or four hours or more. On the average, it may perhaps be stated at about an hour.

The passage from the chill to the hot stage is not abrupt. Rigors for a time alternate with flushes of heat. The first sensations of warmth are rather agreeable than otherwise. A glow is felt about the face and temples, and the patient is conscious of increased heat of breath. Gradually the whole surface becomes hot; but even now, if a limb be moved into a cool part of the bed, sudden chills are felt, vibrating disagreeably through the frame. At length all traces of the cold stage disappear, and the patient is affected with a universal burning heat. The cheeks are flushed, the eyes sparkle, the surface is everywhere reddened, and the skin distended with blood. The evidence of increased heat is not confined to the sensations of the patient. The temperature of the body is positively increased. Fordyce found it to be 105 degrees by the thermometer, and McIntosh states that he has known it to be as high as 110 degrees in Great Britain, and 112 degrees in warm climates. The mouth is hot and dry; the tongue usually furred; and the patient generally complains of great thirst, though

this is not invariable. There is an utter disinclination for food, and occasionally nausea and vomiting. The respiration is more regular than in the chill, but is still accelerated. The pulse is more frequent than in health, and is usually full and strong. In some cases, however, when the state of system is adynamic, it is at once frequent and feeble. All the secretions are diminished; the skin being dry as well as hot, and the urine scanty and often high-colored. The head is almost always painful, sometimes very much so; and the suffering from this cause, as well as the general violence of the febrile re-action, is often greater than is usual in remittent or continued fever. The pain is frequently throbbing, with a feeling of distension in the temples, and seems to be deep in the head, unlike that of the chill, which is generally superficial. There is frequently also pain in the back and limbs. Convulsions are not uncommon in children, at the commencement of the hot stage. Sometimes there is a moderate delirium; but this is not common. In some instances, a rash-like, or a petechial eruption appears and disappears with the fever. The duration of the hot stage varies from two to eighteen hours or more, before it begins to abate.

Perspiration generally appears first upon the face and breast, and gradually spreads over the surface. It is sometimes slight, but generally copious, and occasionally very profuse. Upon its first appearance, the patient begins to feel some relief; and the febrile symptoms gradually abate as it advances. The skin becomes cool, the excitement of the circulation subsides, the mouth is moistened, the headache disappears, and the patient frequently falls into a calm sleep, from which he awakes free from fever.—The kidneys now resume their function, and the urine which is discharged very often deposits a lateritious sediment upon cooling.

The whole duration of the paroxysm varies greatly. In many instances, it does not exceed three or four hours; while in others it runs on to within a very short time of the succeeding paroxysm, lasting sometimes in a quotidian eighteen hours, in a tertian thirty-six, and in a quartan sixty. As a general rule, however, the paroxysm is longer in a quotidian than a tertian, and in this than a quartan. The average duration in the quotidian may perhaps be stated at ten or twelve hours, in the tertian at eight or ten, and in the quartan at five or six. But the paroxysms generally shorten, as the disease becomes of longer continuance.

The paroxysm is liable to other diversities. Sometimes the

cold stage is very slight, and exhibits few of its characteristic symptoms. Cases are not uncommon in which the only discoverable signs are some blueness about the nails, and a little coolness of the nose, ears, hands and feet. This is especially the case with young children. Occasionally, even these symptoms are wanting, and the paroxysm begins at once with the hot stage, without any preceding chill whatever. This is the form of complaint called by the vulgar *dumb ague*, to distinguish it from the more common form, which is called *shaking ague*. Sometimes the sweating stage is wanting; the fever either gradually subsiding without any discharge, the place of the perspiration being supplied by a diarrhœa, or a copious flow of urine. The idea has been advanced, and it seems plausible, that the dropsical effusion which occasionally attends an attack of intermittent fever, may be vicarious to the perspiration. It is asserted that the cold stage has, in some instances, passed into the sweating, without the intervention of febrile reaction; and that, in others, the whole paroxysm has consisted of perspiration without either chill or fever. But, in such cases, the disease, though it may be intermittent, can scarcely be said to merit the name of intermittent fever. In the double tertian, it sometimes happens that, of the two paroxysms, which serve as the prototypes of all the others, one may be regular in all its stages, while the other is destitute of chill, or in some other way peculiar.

Among the vagaries of the paroxysm, a very singular one has been noticed in which the affection is confined to a single limb, which passes through the several stages regularly, the remainder of the system being apparently undisturbed. Various affections occurring at regular intervals, without any other resemblance to intermittent fever than their paroxysmal character, have been considered as *masked* cases of the disease (*febris intermittens larvata.*) Among these may be enumerated neuralgia, rheumatism, epilepsy, hysteria, hiccough, petechial eruptions, diarrhœa, and dysentery, all of which occasionally appear in the intermittent form, occurring daily or every other day at the same hour, with intervals of apparent health. But it appears that they have as little claim to be considered intermittent fever, as the same affections, in their continuous form, would have to be considered continued fever. If they could be shown to be uniformly the result of miasmatic influence, there might be some foundation for this view of their nature; but the fact is, that they sometimes occur

under circumstances in which miasmata could by no possibility have been the cause.

After the paroxysm has subsided, the patient, though without fever, is not usually quite free from signs of disease. General languor, facility of fatigue, pains in the back and loins, uneasy sensations in the head and epigastrium, with some fur upon the tongue, and a feeble appetite, are not unfrequently left behind, in greater or less degree. The patient, moreover, is apt to have a pale or somewhat sallow complexion, and a sickly look. These, or analogous symptoms, are most common after the early paroxysms. Sometimes they are very slight, sometimes so considerable as, in connexion with some heat of skin and frequency of pulse, to render the intermission imperfect. They generally diminish with the continuance of the disease; and at length the patient becomes apparently quite well in the intervals of his attacks; having, not unfrequently, the appetite, the digestion, and the general vigor, though not perhaps fully the aspect of health. To the above rule, however, there are exceptions. Cases occur in which the patient, even at the commencement, is as free from all signs of disease during the intermission, as in his most perfect health.

It has been stated that, in the several types of intermittent fever, the paroxysms return at the same hour of the day. There is however, often some variation in this respect. The commencement of a paroxysm, instead of being precisely at the same time of day as that of the preceding, may be an hour or two earlier, or an hour or two later; and it not unfrequently happens that, if a little before the time upon one day, it is a little after it on the next, so that the mean between the extremes of divergence is the regular hour. In some cases, instead of this fluctuating backwards and forwards, each succeeding paroxysm occurs an hour or two earlier than its predecessor, so that the length of the intermission is regularly diminished. In other cases, it occurs an hour or two later, so as regularly to lengthen the intermission. In the former, the disease is said to be *anticipating*, in the latter, a *retarding intermittent.* One type may in this manner be converted into another. Thus, an anticipating quartan may become a tertian, and an anticipating tertian a quotidian; while a retarding quotidian is changed into a tertian, and a retarding tertian into a quartan. It is obvious that an anticipating quotidian may pass from the intermittent to the remittent form.

It is a remarkable fact, that the paroxysms seldom occur during the night. Perhaps sleep may in some way oppose a resist-

ance to their attack. The rule is not universally, but generally true. In the vast majority of cases, the time of attack is between the hours of eight in the morning and eight in the evening; and it is worthy of observation that, in the anticipating and retarding cases, when the receding or advancing paroxysm reaches the period of darkness, it is apt either to be arrested in its course, or to leap over the night, backward into the evening, or forward into the morning. Thus the paroxysm of an anticipating tertian, occurring first at noon, and recurring afterwards successively at the hours of ten, eight, and six, will, after attaining the last mentioned hour, either continue to recur at the same, or will return next time at about six or eight in the evening preceding the regular period. A retarding tertian, on the contrary, after reaching the confines of night makes its next attack in the morning, subsequent to the regular day of return.

It has been generally observed that, the shorter the intermission, the earlier is the hour of the day at which the paroxysm is disposed to appear. Thus, the quotidian most frequently makes its attack in the morning, the tertian about noon, and the quartan in the afternoon. It is true that there are very frequent exceptions to this rule. Thus, the quotidian and tertian may change places, or may either of them occur in the afternoon; but the paroxysm of the quartan very rarely appears in the morning. Another result of observation is, that the longer the duration of the disease, the later in the day are usually the returns. Hence, in old cases of intermittents, the paroxysm should occur in the afternoon.

Reference has been made to the change of one type into another in the course of an anticipating or retarding intermittent. But the same conversion sometimes takes place abruptly. The most common is from a type with frequent paroxysms, to another in which they are less frequent. Hence, a quotidian is more apt to become tertian, and a tertian quartan, than the reverse.

Intermittents, if left to themselves, will not in general run on indefinitely. The milder cases not unfrequently terminate spontaneously with the seventh or eighth, and sometimes so early even as the fourth or fifth paroxysm. More than one-half of the tertian fevers which occurred in the infirmaries of the *Salpetriere* of Paris, in the autumn of the sixth year of the Republic, terminated with the ninth paroxysm, or previously. The treatment employed was of the simplest kind, and calculated to have little effect upon the course of the disease. According to Fordyce, quotidians usually

end spontaneously in about ten weeks, tertians in about four months, and quartans in six, seven, or eight months. But occasionally, these diseases continue for a much longer time, if not interrupted.

When an intermittent has been checked by any means whatever, it has a strong tendency to return, so that very slight causes will often provoke a fresh attack, and not unfrequently a recurrence will take place without any appreciable cause. Quartans are said to be most apt to relapse; but all the types are subject to the law. In these returns, there is a singular tendency to observe the septenary period. It has been said that quotidians are most apt to return at the end of a week, tertians of two weeks, and quartans of three.

Intermittent fever may be of a sthenic character, with a vigorous reaction, a full strong pulse, a florid surface, and a pure rich blood; it may be asthenic, with unusual depression in the chill, a slow and uncertain reaction, a feeble though frequent pulse, a dusky or purplish hue of the skin, and a depraved, impoverished, or scanty blood; or it may be of any grade between these two extremes. In the first mentioned form, it is sometimes though erroneously said to be inflammatory; for the condition may exist altogether independently of inflammation. In the second form, it may be called simply *feeble*, when the blood is not depraved, and the general energies not greatly depressed; *typhoid*, when along with the debility there is a peculiar contamination or depravation of the circulating fluid; and *malignant*, *pernicious*, or *congestive*, when the powers of the system are so much prostrated as to endanger a very speedy and fatal issue. These differences depend, not on the peculiar character of the miasmatic cause, but upon the previous condition of the patient, or the influence of other causes acting conjointly with the miasmata. Most cases occurring in temperate latitudes have more or less of the sthenic grade; and the characters of this grade have been sufficiently detailed in the general description of fever. The merely feeble cases are known by a general deficiency of energy in the reaction, and the marks of debility in the intermission, without peculiar symptoms of derangement, or any very alarming signs of prostration. They are not uncommon among individuals reduced by previous indisposition. The typhoid cases may be recognized by the greater depression of the chill, the pungent heat of the skin during the reaction, the very frequent but comparatively small and feeble pulse, the more than ordinary dryness of the mouth, the

brown color of the tongue, the tendency to the production of sordes about the teeth, the dusky hue of the surface, and the greater frequency of nervous symptoms, as subsultus tendinum, jactitation, and low delirium. They are met with chiefly among persons previously exposed to the want of proper sustenance, fresh air, and ordinary comforts of life, or at periods when an epidemic typhoid influence prevails in miasmatic districts. Of the malignant or pernicious intermittent, we shall treat separately; as it differs from the other forms strikingly in some of its symptoms, and requires that especial attention should be called to it, in consequence of its terrible fatality when mistaken, and inefficiently treated.

The organs most frequently affected are the stomach and bowels, the liver, the lungs, the brain, or its investing membranes.—To enumerate here all the symptoms characteristic of the phlegmasiæ of these structures, would be to anticipate what must be stated fully hereafter. It will be sufficient to notice a few prominent symptoms, which may serve to fix attention upon the inflammation when it shall exist. When the stomach is inflamed, there are usually burning pain and tenderness upon pressure in the epigastrium, a craving for ice or cold drinks, and a more than ordinary degree of nausea and vomiting; substances which are ordinarily acceptable to the stomach, being often promptly rejected.—Inflammation of the bowels is manifested by colicky pains in the abdomen, more or less tenderness over some particular part of its surface, and diarrhœa, or dysenteric symptoms. The liver may be considered as the seat of inflammation, when there are pain and tenderness in the right hypochondrium, difficulty of lying on the left side, pain in the right shoulder, nausea and vomiting, discolored evacuations from the bowels, yellowness of the skin, conjunctivæ, or tongue, and a deep brown color of the urine. These inflammations are most frequent in the summer and autumn. The symptoms of thoracic inflammation are different, according as the bronchial membrane, the parenchyma of the lungs, or the pleura is affected. In the first case, the ordinary catarrhal symptoms are presented; in the second, cough with a scanty, viscid, and rusty expectoration, and an obtuse pain in the chest; in the third, acute pain at some one point in the side. This complication is most frequent in winter and spring. Inflammation of the encephalon may be suspected, when the pain in the head is severe, the patient is painfully sensitive to light or sound, the pupil is contracted, and delirium or convulsions are conjoined with the other symptoms.—All those inflammatory complications are the most apt to occur

young and vigorous. They are proportionably more frequent in the quotidian than the tertian, and in the tertian than the quartan. Old persons are most subject to attacks of apoplexy or paralysis.

Authors sometimes speak of *gastric intermittents*, and *cerebral intermittents ;* but there is no foundation for such distinctions.— It is true that the stomach and brain are severally much more irritated in some cases than in others ; but the same may be said of any one of the organs ; and thus we should have subdivisions of the disease as numerous as the functions. The cases, denominated as above, generally owe whatever peculiarity they may evince to complications of the intermittent fever with gastro-hepatic inflammation, in the one case, and with some form of encephalitis in the other.

If an intermittent be speedily checked, it will leave no other unpleasant consequence behind it than a disposition to return.— But, if allowed to run on indefinitely, or if frequently provoked to return by a continued exposure to the cause, it sometimes produces very disagreeable effects. The most common of these is *enlargement* of the spleen. Miasmata appear capable of producing disease in the spleen, liver, etc., by an immediate influence ; and it is possible that affections of this kind, accompanying intermittents may sometimes be the result of the same cause that gives rise to the fever ; but it is very certain that they are frequently, and highly probable that they are much the most frequently occasioned by the intermittent paroxysms. Indeed, the spleen can often be perceived to be enlarged during the cold stage. The blood which leaves the capillaries becomes congested in the viscera, and especially in the spleen, which is probably intended as a diverticulum to prevent injury from such irregularities of the circulation to more important organs. The enlargement subsides somewhat in the apyrexia, but returning again in greater degree in the subsequent paroxysm, becomes at length, in some instances, excessive; so that the spleen may be perceived extending far into the abdomen, and occasionally occupying more than one-half of the cavity. It is generally also more or less indurated. In this state, it is commonly called *ague cake*, and is a well-known affection in miasmatic districts. It is said to be most common in the quartan, and least so in the quotidian. The more obstinate and long continued the disease, the more apt it is to be attended with this affection of the spleen.

In like manner, the liver sometimes becomes enlarged and indurated ; and, even when not sensibly increased in bulk, is often

affected with chronic inflammation, or derangement of function, giving rise to jaundice, dyspepsia, diarrhœa, etc.

The appearance of a patient laboring under chronic intermittent is characteristic. His countenance has a sallow paleness, with frequently a sad or dejected expresston, indicative of habitual depression of spirits. Feelings of languor, muscular weakness, and fatigue upon slight exertion, are very common. The tongue is furred, the appetite feeble, the discharges from the bowels clay-colored or otherwise deranged, and the urine occasionally dark brown as in jaundice. Sometimes the body is emaciated, some times rather full as if bloated.

A very frequent result of protracted intermittent is dropsy.—This affection sometimes occurs during the continuance of the disease, and, as before stated, has been ascribed in part to a vicarious secretion into the cellular tissue and serous cavities. But it is more frequent after the intermittent has been interrupted. Even in such cases, it may possibly be owing, in part, to the substitution of a serous discharge for the perspiration to which the system was accustomed, and to which the process of sanguification had become accommodated; and a return of the paroxysms is sometimes followed by a disappearance of the dropsy. The probability is, that the watery condition of the blood so often an attendant or result of intermittents is the main source of the effusion in these cases.—Another source of dropsy in intermittents, is organic disease of the liver and spleen. The veins of the abdominal viscera, and sometimes of all that portion of the system drained by the branches of the ascending vena cava, become congested, in consequence of obstruction in the liver and spleen, and relieve themselves by effusion. This form of dropsy is often obstinate, and sometimes incurable; for, though relieved by remedies, it is apt to return so long as the cause continues. Yet, when the result of intermittents, it is much less hopeless than when springing from independent disease of the viscera; for there is always some prospect of removing it by eradicating the original affection.

The only diseases with which intermittent fever is liable to be confounded are hectic and remittent fever. Hectic fever, however, may in general be easily distinguished by the irregularity of its paroxysm, the comparative absence of headache, the excessive and prolonged sweats at night, the clearer complexion and brighter eye, the frequent want of gastric derangement and a fur on the tongue, the continued frequency of pulse throughout the interval, and the serious organic diseases of which the hectic is usually a

mere symptom. Remittent fever is distinguishable only by the continuance of fever during the whole interval; and sometimes it is very difficult to decide whether the case belongs to the one or the other variety.

In the uncomplicated form of intermittent fever, without malignant tendency, the prognosis is almost always favorable. We have never seen such a case eventuate fatally. It is possible that, when there is a disposition to cerebral disease, with the brain perhaps already softened, fatal apoplexy may be induced in the paroxysm, either from the venous congestion of the cold stage, or the strong determination of blood in the stage of reaction. There is reason to believe that such a result does sometimes occur, especially in the old, and in the intemperate. Inflammation of any of the vital organs may of course give rise to danger. Instances of fatal effects from congestion and rupture of the spleen have occurred. But the chief danger of ordinary intermittent is from those secondary affections which result from its neglect; such as chronic enlargement and induration of the liver and spleen, and dropsy. Even in these cases, however, the prognosis is more favorable than in similar affections, proceeding from other causes. It is not uncommon to see cases of the cachexy of intermittents, with disease of the liver, jaundice, dropsy, etc., of apparently the most unpromising character, give way to appropriate treatment.

The more complete is the apyrexia, the more readily will the disease yield. The postponement of the paroxysm by two or three hours or more at each recurrence is a favorable sign. So also is the appearance of an herpetic eruption about the lips and the alæ nasi. Relapses usually yield more readily than the original disease; and the vernal cases than the autumal. Of the different types, as a general rule, the quartan is the most difficult of cure, and the tertian the easiest.

Treatment.—The most simple and yet efficacious treatment for this disease, where it is not complicated with other affections, is the following which will cure a large majority of cases even of bad types: 1st, administer a Lobelia emetic during the remission. 2d. Let this be followed by a Cathartic of Leptandrin, or any mild cathartic pills; then 3d, give any ordinary tonic bitters, with a small portion of quinine in them. These bitters to be taken every hour in the usual doses for three or four hours previous to the expected chill. Let this course be repeated if the chill recurs.

The treatment of intermittents must be considered under two distinct heads; namely, that which is proper during the parox-

ysm; and that which is to be employed during the intermissions, and upon which the radical cure of the disease depends.

In the ordinary regular intermittents of the temperate latitudes, remediate interference during the paroxysm of the disease is extremely uncommon, and is indeed very generally altogether unnecessary. Nevertheless, where the febrile excitement becomes very violent in the hot stage; or where the system is so far enfeebled that dangerous congestions and oppression occur during the cold stage, medicinal aid is not only proper, but sometimes absolutely essential to the safety of the patient. During the cold stage of an intermittent, the patient ought to be kept moderately warm; and as the thirst is generally very urgent, bland and warm drinks should be freely allowed. In general, however, *stimulating* drinks, and the application of much artificial heat, with the view of moderating the distressing sense of cold, are improper; since they very rarely lessen the feeling of chillness, and tend often considerably to increase the violence of the succeeding *hot* stage. These observations apply to the regular disease, occurring in individuals of sufficient vital energy to develop the hot stage, without any artificial support. When the patient is feeble, nervous or exhausted, it will, generally, be beneficial to aid the vital powers during the cold stage, both by external and internal exciting agents, more especially, by the application of external heat. Without such aid, the cold stage will probably be greatly prolonged, and the system so oppressed, by internal congestion, as to prevent the regular development of the subsequent stages.

In all cases of ague and fever, the indications to be answered are—first, to put as speedy a stop as possible to the fit when it has taken place; and, second, during the intermission, to prevent its return at the usual, or any after period—both by exciting a new action in the system, by the administration of proper remedies at the commencement, or immediately before the accession of the cold fit, thereby destroying the morbid concatenation induced by the cause of the diseases, and by invigorating the body.

To effect the first of these intentions it is proper to have recourse to warm diluents, diaphoretics, fomentations, or the vapor bath, which is in general a more sure remedy, combined with the foregoing diaphoretics. By placing the patient in the bath half an hour before the expected paroxysm, and keeping up a lively steam until the period has elapsed, in many instances a cure may be effected. After which, the second intention may be completely effected with the usual stimulants and tonics.

If the complaint be of a mild form, and no other disease present, we may very safely commence the cure by giving a dose of the diaphoretic powders, three or four times a day, to promote the secretions and excretions, which will have a tendency to restore a healthy action to the different organs; also giving a dose of the stimulating or hot bitters three times a day previous to eating.—At night a hot brick or stone quenched in cold water, may be applied to the feet, first wrapped in a wet cloth and then in a dry one, at the same time, a dose of the ladies' slipper with a fourth of a tea-spoonful of cayenne with it to promote perspiration and strengthen the nervous system.

The butter nut syrup, bitter root, or black root, may also be used to act upon the bowels. But in all violent attacks, the vapor bath and emetic, ought to be immediately resorted to, and thus cleanse and purify the whole system, with all the fluids, before the powers of life become much weakened or the tone of the organs impaired. And this process ought to be repeated every day, every other day, or at longer intervals, according to the symptoms, until the complaint be removed. As in many cases a recurrence of the paroxysms will take place notwithstanding the best means have been used, it may be best, a little previous to the time of the expected return of the fit, for the patient to sit before a warm fire, with a blanket around him, and drink freely of a strong decoction of the diaphoretic powders, or of a tea of bayberry or some other astringent article, made very hot with cayenne, to stimulate the living power, and to promote perspiration. Or the patient may retire to bed, and have a hot brick applied to the feet and side or back, and pursuing the same course, in other respects, as if sitting by the fire.

It is customary with some to commence the operation of vapor bathing, and giving an emetic a short time preceding the expected return of a paroxysm of intermittent, which often answers the best purpose, by preventing every symptom of the fit. But it sometimes happens that notwithstanding all that can be done in this way, the paroxysm comes on, and then it becomes very fatiguing and unpleasant to the patient; yet the good effects of the process are not thereby lost.

The process of vapor bathing may be often very profitably commenced when the hot stage is coming on, as perspiration is then much easier promoted than it is previous to, or during the cold stage. But in all cases where the process of steaming or vapor bathing and giving an emetic does not prevent the paroxysm,

it is better to resort to this process after the fit has gone entirely off, and so long previous to the commencement of the succeeding paroxysm that the patient will be entirely recovered from the fatigue necessarily attendant on the process.

An emetic may often be advantageously administered without the steaming process; but in all bad cases, the whole process of steaming, giving the emetic, etc., is the grand dependence for effecting a cure. During the intervals, between the steamings, the patient should take of the diaphoretic powders and bitters frequently during his waking hours; and if there be much pain in the head, with restlessness and anxiety, the head must be bathed in cold water or vinegar, and doses of the nerve powder occasionally administered, as the circumstances of the patient may require. Drafts applied to the feet may also have a good effect to remove the pain in the head. These may be made by spreading the dregs of the tincture of myrrh on cloth, and apply them to the feet.—Endeavors ought also to be used by the application of hot bricks, and the administration of cayenne, to keep up a perspiration, which will have a tendency to allay the irritation and anxiety which often attend bad cases of intermittents.

To lay down rules applicable to the treatment of this common, and sometimes complicated malady, suited to every isolated case, cannot be expected—much must depend on the discretion and judgment of the physician in attendance. It is a point worthy of consideration in the remedial treatment of this complaint, by many judicious Reform practitioners of the South, whose experience is certainly entitled to regard, to keep the system under the constant influence of a proper degree of stimulation.

During the cold stage, composition may be administered in moderate quantities, and repeated at intervals to suit the condition, age, and strength of the patient. If the constitution be strong and plethoric, it should be given very sparingly; but on the other hand, if the strength of the system is reduced and the patient debilitated, it ought to be given very freely.

During the hot stage, but little can be effected more than to keep the body in as quiet condition as possible—give mild diluent drinks, and if there is excessive heat and dryness upon the surface, it should be sponged with tepid water, or saleratus. After this and the succeeding stage have subsided, the tonic treatment should be commenced; and it is highly important the system should be kept under a due degree of the proper stimulation without remission. Golden seal in repeated large doses every two

hours, (say a small dessert-spoonful) will usually "break the chill." If the golden seal is not active enough to produce the desired movements of the bowels, mandrake or bitter root may form a suitable combination to accomplish that purpose; or take a large table-spoonful every two hours of the following mixture, viz: Two and a half ounces of golden seal; one half ounce of bitter root; cayenne pepper, small table-spoonful, (all finely pulverized;) water, half a pint. Or golden seal, best yellow peruvian bark, columbo, each one ounce; cayenne and bitter root, each one table-spoonful, water half a pint. Dose, same as recommended in the formula above.

The sulphate of quinia is the great remedy however, and all our authors recommend it as a specific.

From twelve to twenty-four grains of the sulphate of quinia should be given between the paroxysms, and continued in this quantity until the disease is arrested. The amount required is very different in different individuals. Some are very easily affected by the medicine, as shown by the buzzing or roaring in the ears, and partial deafness which they experience, after having taken but a small quantity; while in others, very large quantities are requisite to produce the same effect. The cerebral sensations produced by the medicine may be considered as a sign of its action on the system; and, when they are experienced, it is usually unnecessary to push the quinia further than may be requisite to sustain them in a moderate degree. Should they be severe, the medicine should be suspended until they subside. It is seldom, however, that less than twelve grains, in each intermission, can be relied on. We have repeatedly known cases, treated for a considerable time with smaller doses without effect, to yield immediately to the medicine in larger quantities. When, therefore, the disease is not interrupted at the second paroxysm from the commencement with quinia, the medicine should be increased to any amount which may be necessary to produce its peculiar effects upon the brain, whether that amount be the larger quantity above mentioned, or much more.

Some physicians are in the habit of prescribing very large quantities of the sulphate, in all cases indiscriminately. From thirty to sixty, or even one hundred grains, have been given during twenty-four hours. These amounts *may* be required in certain cases, but seldom or never in the disease as it ordinarily occurs. Where there is a tendency to cerebral inflammation, it would be very likely to be developed by large doses of quinia

and cases of this kind are upon record. Besides, to employ the quinia so profusely in ordinary cases is to make great waste of a most valuable and a costly medicine, and thus unnecessarily to enhance the price.

We much prefer, however, that the quinia should be administered in small doses, and frequently repeated if necessary during the remission of the fever.

The Peruvian bark, the cornine, and other anti-periodics have lately been much extolled, and we have no doubt are really valuable in this disease.

The diet, during the continuance of the disease, should be light, digestible, nutritious and unstimulating. For the first day or two the patient should generally avoid animal food, and afterwards use the lighter kinds, such as milk, butter, soft boiled eggs, and boiled meats, in connexion with farinaceous substances and easily digested vegetables. Stimulating drinks should not be used. He should avoid eating a full meal within two or three hours of the expected paroxysm ; as the food does not digest during the fever, and sometimes serves as a source of injurious irritation. When the intermission is complete, it is not necessary that the patient should confine himself to the house ; though he should avoid fatigue. In some cases, violent exercise on horseback between the paroxysms has proved remedial.

Misasmatic regions should be avoided from the first of July to the occurrence of black frost in the autumn. They who are compelled to reside in, or pass through them, at this season, should especially avoid the morning and evening air, and should never sleep out at nights. If necessarily exposed at these times, it should not be with the stomach empty, nor after fatigue or exhaustion of any kind. The intense heat of the sun in the middle of the day should be avoided or guarded against, and all kinds of excess be scrupulously shunned. Individuals should be careful not to expose themselves to cold when heated, and never to remain long in wet clothes.

Dr. J. R. Lasseter has favored us with the following treatment for Chills and Fevers :

Give a dose of Cathartic Powder composed of two parts Black Root, one part Mandrake and 1-4 part Blood Root, well mixed, at night on going to bed. Dose : 20 to 30 grains stirred in a little water or syrup. The next morning give the following :

30 grains	Cathartic Powder,	30 grains	Cayenne
15 "	Quinine,	30 "	Lobelia Herb,

Mix, and make into pills. Mass with Ext. Boneset. Divide into 36 pills.

Dose.—One every hour during the day until twelve are taken —the next day twelve more, and so on until all are taken.

This will be sufficient in all ordinary cases. But in severe ones an emetic in the beginning, should be administered.

Generally one prescription will effect a cure in two or three days. If not, repeat it.

It is a sufficient recommendation of the efficiency of the above, to say it has never failed with me.

The following is another method very successful with one of our students, who has had quite an extensive practice:

First, cleanse the system well with Podophillins and Leptandrin, equal parts, made into pills with Ext. Butternut.—Then give five grains each of Cayenne and Quinine in powder or pills, every two hours, commencing four hours before the time for chill. After this, the above dose once every day, four hours before time for chill, for three or four days.

When the chills are chronic, give the following:

R.—1½ oz. goldenseal, ½ oz. cayenne, 4 oz. Peruvian bark, and if the patient is cachecised, add 1 oz. of Carb. Iron and 1 grain less Peruvian, and if bowels are costive, add ½ oz. Bitter root in place of 1 1-2 oz. of the Peruvian. Add the compound to half gallon spirits, digest one week and give tablespoonful three times a day.

A cold shower bath is frequently an addition to the treatment. If there is enlargement of spleen, apply Beach's plaster and fomentations.

FEBRIS REMITTENS—BILIOUS REMITTENT FEVER.

Description and Causes.—Two distinct fevers are endemic in the United States; one, the variety of miasmatic fever usually called *remittent*, which prevails in the latter part of summer and in autumn; the other, the complaint known by the names of *common continued fever*, *typhoid fever*, *dothinenteritis*, *etc.*, which occurs most frequently during cold weather. So peculiarly are they diseases respectively of the seasons mentioned, that the former may be considered as the autumnal, the latter as the winter endemic of our country. Either of them, however, may occur at any period of the year; and the two not unfrequently exist at the same time. As they often bear no inconsiderable resemblance to each

other, and yet require, in some respects, very different treatment, it is of great importance that they should be distinguished; and the attention of the student is called to them in this place, in order that he may have his mind especially directed to their diagnostic characters. This is the more necessary, as the two diseases have been, and still are not unfrequently confounded by practitioners.

Remittent or bilious fever occurs more or less in almost all parts of the United States, lying between the Northern Lakes and the Gulf of Mexico; but is much more frequent in the middle and southern sections than in the northern. In some parts of New England, it appears to be almost unknown; the common endemic fever of those regions being probably the winter fever above alluded to. It is rare in the mountainous and hilly districts of our country, except where there are large streams or standing water; also, in the dry sandy regions covered with pine forests, and in the middle of cities. Hence, these are frequently the resort of the inhabitants of miasmatic districts during the sickly season. The situations in which the disease is most prevalent are the valleys of streams, the borders of lakes or ponds, the neighborhood of marshes, and the rich prairies of our Western States. Sometimes it occurs as a kind of epidemic in regions usually healthy, and occasionally rages in them with great violence. It is in general a much more serious disease, in the southern and south-western sections of the United States, than in those portions of the North which are still within the limits of its prevalence. But the disease is not confined to this country. It is endemic almost everywhere in hot climates, and especially where heat, moisture, and decaying vegetable matter act conjointly. Comparatively mild in temperate latitudes, it becomes extremely fatal in many places within the tropics. It is the disease of whose ravages in the East Indies, Africa, the Mediterranean, and South America, we have heard so much; which has depopulated the Campagna of Rome, and rendered intertropical Africa uninhabitable by whites. It was probably this fever that was best known to the Greek and Roman physicians, and upon which the descriptions of ancient medical writers were chiefly founded. It must not be confounded with the yellow fever, which is quite a distinct affection.

The disease has received numerous names, all of which are liable to objection. It is undoubtedly *remittent;* but there are other fevers which are more or less remittent, and cases of this fever sometimes occur in which it is difficult to detect any decided remission. It is often *bilious;* but so also is yellow fever in at

least an equal degree; and it often happens that the one which we are considering does not show any special disorder of the hepatic function. It has frequently received names from the localitites where it prevails. Thus, we hear of the *African fever*, the *Bengal fever*, the *Mediterranean fever*, the *Walcheren fever*, *etc.*, *etc.* The complaint, as it prevails on the borders of our inland seas, is called *lake fever;* the people of cities which are exempt from it, while the surrounding districts are affected, often name it *country fever;* and the inhabitants of healthy uplands are apt to designate it *river fever* or *marsh fever*, from some stream or marsh in their vicinity, the borders of which are infested by it. All these are one and the same disease, and therefore improperly named.—If its exclusive miasmatic origin be admitted, the title of *miasmatic remittent* would perhaps be the least objectionable of any hitherto given to it. We shall, however, call it indifferently remittent and bilious fever; and, when these terms are employed without qualification, they may be considered as belonging to the disease in question.

It has already been stated that miasmatic remittent fever is essentially the same disease as the intermittent. The two affections sometimes approach each other so closely in form, that it may be impossible, in relation to a particular case, to decide to which of them it belongs. In intermittents there is often some degree of morbid action between the paroxysms, and in remittents often very little; and it is not only possible to determine, whether the morbid action that exists does or does not amount to fever. If it be pronounced not to be fever, the disease must be considered intermittent; if fever, remittent. In the latter affection there is every grade, from the doubtful form just alluded to, up to an almost uniform continuous fever.

In many cases, the paroxysms of remittent occur at regular stated intervals, like those of intermittent, and, like them, consist of the cold, hot, and sweating stages, though in general less distinct and decided. In other cases, with the same regularity in the recurrence of the paroxysms, there is no cold stage after that of the accession of the disease, and the sweating stage is either slight or wanting. In others, again, the fever merely fluctuates in its course, at one time rising into a moderate exacerbation, at another falling into a moderate remission, without forming well defined paroxysms. Instances, moreover, do occur, though they are comparatively rare and always short, in which the fever pursues a uniform course, without discoverable relaxation, and sometimes with a regular increase, to the crisis.

All the above conditions may occur in the same case. At the commencement, there may be two or more regular paroxysms as in the intermittent; afterwards the paroxysms may occur regularly without the chill or the perspiration; and at length the fever may assume the continued form, and thus run on to its termination. Or, the disease may commence as continued fever, may after a time become paroxysmal or remittent, and may finally end in intermittent.

Remittent fever has the same types as the intermittent. The most frequent is the quotidian, with a paroxysm occurring at about the same hour every day. The tertian, with its every other day paroxysm, is not uncommon. The quartan is very rare. Next, perhaps, to the quotidian is the double tertian, having a daily paroxysm, but that of one day differing from that of the next, and the alternate paroxysms resembling each other both in character and time of occurrence. Thus, the paroxysms may occur one day in the morning, and the next in the evening; and all the morning paroxysms shall be regular, while those of the evening shall be in some manner modified, either very light and short, or without chill or perspiration, or attended with nausea, while those of the morning are attended with headache. A remittent may always be considered of the double tertian type, when, having an exacerbation every day, it is yet much worse on alternate days. Sometimes two exacerbations occur in one day, and only one in the next; and cases are occasionally met with, in which the principle of association between the exacerbations cannot be traced; as they every now and then make their appearance irregularly, and when least expected.

Some difference exists among writers as to the time of the day at which the paroxysms of remittent fever are most apt to commence. The first onset of the disease appears to take place indifferently at any hour of the day; sometimes in the forenoon, sometimes in the afternoon, and occasionally even in the night, and the tendency is afterwards for the paroxysms to return about the same hour. But, when the disease approaches the continued form, and the commencement and termination of the exacerbations are not precisely marked, the disposition generally is to an increase of the febrile action in the evening, and a decline in the morning.

There are two distinct modes in which we may estimate the grade of the fever; first, in reference to its greater or less violence; and, secondly, in reference to the greater or less energy of system which attends it. In both respects, bilious fever varies greatly.—

As regards the violence of the disease, it may be of all conceivable grades, from a mildness which scarcely confines the patient, or requires the interposition of remedies, to a severity which demands the promptest treatment to preserve life, and against which all the resources of nature and art occasionally fail.

The essential cause of bilious remittent is probably the miasma which proceeds from marshes, etc. Many believe that, while produced by this cause, it may also proceed from others, especially a high degree of heat combined with moisture. If this were the case, why should we not see it originating in the midst of our cities, where the heat is intense, and moisture often abundant?—Why does it not occur constantly among seamen, navigating equatorial seas, whether long from port or not? The fact is well known, that the crews of ships within the tropics remain free from the disease, so long as they keep at a certain distance from the shore.—They may be affected with scurvy, dysentery, diarrhœa, and various phlegmasiæ; but they escape bilious fever. Let them, however, approach a miasmatic coast, and it often happens that almost the whole crew are seized with the disease. They are also often affected with it after leaving port, until the period during which the cause may be latent in the system is passed. It is true that instances are on record, in which the disease is asserted to have raged fearfully in barren islands, with little vegetation upon their surface, and offering no obvious source of these poisonous effluvia.—But our information on these points is generally too vague to be relied on. We do not know whether some lurking source of miasmata may not exist, and have escaped a careless search. We cannot by any means be certain that the diseases alluded to were, in all instances, really bilious fever. They may have possibly in some instances, been yellow fever, which has often been confounded with the bilious; they may have been in others merely gastro-heptic or cerebral inflammations, or these mingled with a diseased condition of the blood, arising from impure and confined air, or other causes such as occasionally produce typhus fever. It so frequently happens that communities escape bilious fever, though long exposed to excessive heat, if unattended with vegetable decomposition, and so seldom escape it entirely, when the latter cause is to any great extent conjoined with the former, that the few instances which have been adduced in contravention of the rule cannot but be looked upon with some suspicion; at least the inference is justifiable, that they might probably be reconciled to the rule, were all the circumstances accurately known.

There cannot be a doubt, that remittent fever results from the same cause as the intermittent. The former probably occurs preferably to the latter, when the cause is highly concentrated and powerful, or the system of the patient peculiarly susceptible.—Hence, intermittents are more common, relatively, in the cooler latitudes, at the commencement or near the close of the sickly season, in situations least exposed to the access of the poison, or when its source has begun to fail, and in persons who, from residence in miasmatic regions, are in some measure protected against it. Remittents on the contrary, prevail most in hot climates, in the midst of the sickly season, in places where the exhalations are most abundant and have the best opportunity to act, and among individuals least protected by habit against their influence.

Remittents sometimes appear to prevail epidemically, spreading over wide districts of country, which had previously been exempt. But, even under these circumstances, it is probable that the essential cause is the same. Certain seasons appear to favour the developement of miasmata; and a strong proof that, even in apparent epidemics, it is really these emanations that act is, that the disease still occurs in the latter part of summer, and in the autumn. We do not hear of epidemics of remittent fever in the winter. It has been observed that seasons in which long continued drought, sufficient to destroy vegetation, is followed by great heat and rains, and those in which long continued rains are followed by hot and dry weather, are favorable to the prevalence of remittent fever.

There is no doubt that, as in intermittents, various causes may excite the disease sooner than it would have occurred under the influence of the miasmata alone, and that, with the aid of certain other causes, miasmata will often produce the disease, when without such aid they might have failed; but, in all cases, the miasmatic influence is necessary. In relation to these co-operating causes, it is unnecessary to add anything to what has been already said under intermittent fever. They are precisely the same in the two affections.

It is a singular fact, that the negro, though not entirely exempt from miasmatic fever, is much less liable to it, and, when attacked, suffers less from it, as a general rule, than the white. Hence, the coast of Africa, which is so fatal to persons of our colour, is favorable to the negro; and the latter lives and works in the rice fields of Carolina, at seasons when a single night spent among them would be death to his master. Persons who dwell in miasmatic

districts are much less susceptible to the disease than strangers who incidentally visit them; and, after complete recovery from one attack of remittent fever, the visitor acquires, in a certain degree, the same comparative insusceptibility, or, in other words, becomes in some measure acclimated.

The period at which the disease occurs, after exposure to the cause, is very different in different cases. Instances are said to have happened, in which the poison has been so concentrated and powerful as to produce its effects immediately. Generally, however, it lies apparently dormant for a period varying from one to two weeks, and sometimes longer. It is no uncommon event for persons, coming into our northern cities from miasmatic regions, to be attacked with remittent in the winter, though they may have escaped during the previous summer and autumn.

For one or two days or more before the commencement of the fever, the patient is very often affected more or less with feelings of general discomfort, weariness, or languor, a sense of weight, fulness, or indescribable uneasiness at the epigastrium, deficiency of appetite, disordered taste, slight pain or uneasiness in the head, especially over the brow, and fugitive pains or soreness in different parts of the body. If the tongue is examined, it may appear slightly furred near the root, perhaps the pulse may be a little excited, and the complexion somewhat dingy or sallow.—These symptoms, however, exist in various degrees in different cases, and some of them are frequently wanting. Sometimes they are felt, with or without alternating sensations of chilliness and warmth, at a particular time every day or every other day, with intervals of healthful feeling, until at length they deepen into regular paroxysms. During this preliminary period, the patient is going about, and engaged, though languidly, in his ordinary avocations. In many cases, no such premonitory symptoms are observable, and the patient is attacked in the midst of apparently good health.

The disease usually commences with sensations of chilliness, amounting often to rigors; and a slight coolness of the extremities is generally sensible to the observer. The face is usually pale, and the lips purplish. The pulse is small, depressed, and not unfrequently irregular. Occasionally, there are nausea and vomiting, thirst, and pain in the loins and extremities. The duration of the chill varies from a few minutes to an hour or more; but it is seldom so severe or long continued as in intermittent fever. Not unfrequently, the only sign of this stage is a sense of chilliness alter-

nating with flashes of heat; while, to the by-stander, the surface feels uniformly warmer than in health. For some hours after reaction, the patient is frequently liable to this chilly sensation, upon every change of posture which brings his skin into contact with a cooler portion of the bed. When febrile reaction has been established, the patient feels uncomfortably hot, the skin is hot and parched, the surface generally somewhat reddened and expanded, the respiration hurried, and the pulse increased in frequency and fulness, and often also in force. At this stage of the complaint, however, the pulse is in ordinary cases not very frequent; being sometimes as low as 90 in the minute, and not often exceeding 116 or 120. It is usually open, well-developed, and sufficiently forcible, but not commonly very hard or tense. The tongue is almost always somewhat coated, but the fur is generally thin at this early period. There is a complete loss of appetite, amounting even to a feeling of loathing for food; sometimes with, sometimes without, nausea and vomiting. Thirst is a very frequent, though not constant symptom. The face is usually flushed, and the eyes suffused; and the patient almost always complains of headache, which is often severe, tensive, or throbbing, and is in most instances the source of greater suffering than any other cause. There are also frequently pains more or less severe in the back, loins and extremities. Though seldom delirious, the patient is restless and wakeful. When not delirious, he is also sensible of great muscular weakness, and usually finds it necessary to keep his bed.

These symptoms continue without abatement, for a considerable time, usually from six to eighteen hours, after which they begin to relax, with the appearance of moisture about the neck and face. This gradually increases, until the whole body is covered with a gentle perspiration; and the patient now experiences so much relief that he often falls into a quiet sleep, from which he awakens refreshed, and apparently much improved. The headache, thirst and nausea have greatly abated, or quite disappeared; the pulse has become almost natural; the skin is cool and soft; the tongue often shows a disposition to clean; and food is sometimes received, if not with relish, at least without disgust. This is the remission. It is frequently less complete than above described; but, in almost all cases of ordinary bilious fever, occurs in a greater or less degree. It is exceedingly variable in duration, in some cases lasting not more than two or three hours, in others a whole day; being shorter or longer according as the type of the fever may be quotidian or tertian. Another paroxysm of fever

then takes place, sometimes, like the first, beginning with a chil and subsiding with perspiration, but frequently also without either the one or the other. This ends in due time in another remission; and thus the alternation continues, each successive exacerbation becoming, as a general rule, more severe and protracted, and each remission less decided and shorter, until the disease attains its maximum of severity; when, though in many instances the remissions are still distinct, yet it often happens that they are quite otherwise, and that the only evidence of fluctuation in the course of the fever is, that the pulse beats a few strokes less frequently, the skin is somewhat cooler, and the sufferings of the patient somewhat less, in the morning than in the evening. In this stage, the following symptoms are presented; and it may not be improper to repeat, that, in some cases, the disease starts into existence in this comparatively continuous form, and presents the symptoms alluded to almost from the outset.

The *pulse* is usually more frequent than at first, and occasionally much more so, being sometimes above 120 in the minute. It has also not unfrequently acquired increased tension and force, by the developement of inflammation in one or more of the organs.—The *heat* and *dryness of the skin* have also been augmented. The *tongue* is now thickly and uniformly covered with a whitish or yellowish-white coating, which, as the disease advances, often becomes brown or blackish, especially in the centre. In moderate cases, the tongue is usually rather moist throughout the disease; but, in those of a higher grade, it not unfrequently becomes dry or dryish, and sometimes chapped or fissured upon the surface. It is occasionally disposed to be dry in the paroxysm, and to become moist in the remission. At the sides, where not covered with fur it is usually red, and not unfrequently indented by the teeth, in consequence of being somewhat swollen. Sometimes the patient is troubled with uneasy sensations in the back part of the tongue, or in the fauces, which cause an almost constant hawking, with the discharge of a glairy mucus. In the great majority of cases, there is more or less *tenderness upon pressure in the epigastrium.*—Sometimes this is excessive, so that the patient cannot bear with equanimity even the touch of the fingers. There is very frequently also a feeling of *weight* or *oppression* in the region of the stomach; and occasionally also a *burning pain*, which is in some instances almost intolerable. The epigastric tenderness and pain are not in general experienced, in any considerable degree, before the third or fourth day, and are apt to increase with the progress of the dis-

ease. They are among its most striking characters. With these symptoms, there is very often an irritable, sometimes an excessively irritable state of the stomach. *Nausea and vomiting* are very frequent attendants upon bilious fever. Though occasionally present at the beginning, they are more troublesome, as a general rule, when the disease is at its height. The matter ejected is usually of a yellowish, greenish, grass-green, bluish, or brownish colour, and a bitter, acrid taste; sometimes a glairy mucus; and, in many cases, whatever is swallowed. It is not unfrequently difficult to induce the stomach to retain either medicine or drink. The nausea is often so great as to produce some temporary weakness of pulse, and damp relaxation of the skin; and, when it is severe, the headache is diminished, and delirium, if previously existing, often calmed. It must not, however, be understood that nausea and vomiting are constant attendants on bilious fever. Many mild cases run their whole course without these phenomena; and, in some very severe cases in which disease seems to be concentrated in the brain, the stomach apparently escapes. The *bowels* are usually constipated, especially in the early stages; and it is said that purgatives sometimes act with great difficulty. The stools are generally disordered, sometimes dark colored and offensive, sometimes showing a deficiency of bile, but more commonly bilious, with some shade of yellow, green, or black. At a somewhat advanced period of the complaint, a bilious diarrhœa not unfrequently sets in, and dysenteric symptoms sometimes make their appearance. In some instances, looseness of the bowels exists from the commencement; and, as vomiting is apt to be present at the same time, the complaint is ushered in with a kind of cholera morbus.—If worms exist in the bowels, they are generally discharged.

The *urine* is scanty, and often yellowish-brown, or reddish and turbid, and, in the latter stages, of a dark reddish-brown color. Early in the disease, and in all stages when the paroxysmal form is very distinct, it has a tendency to become more copious in the remissions, and, though clear upon being discharged, to deposit a lateritous sediment upon cooling.

One of the most most striking characteristics of the disease, though not present in all cases, is a *yellowish hue of the skin* and of the white of the eyes. This sometimes makes its appearance at the beginning, but more frequently not till about the third or fifth day of the disease. It is often uniform over the whole body, and before the close is sometimes very intense. In some bad cases, it assumes a dark or bronzed hue. Occasionally the yellow matter

is thrown off upon the surface, so as to stain yellow a white handkerchief when rubbed upon the skin. It is said to be less intense, as a general rule, in those cases in which there is a copious bilious diarrhœa. Under the same circumstances, the urine, is usually of a very dark yellowish-brown color.

The *nervous system* also participates strongly in the disease.—No symptom is more common or constant than *headache*. Very frequently it begins with the fever, and, though moderated in the remissions, does not wholly leave the patient during its continuance, unless removed by remedies. Along with the headache there is frequently vertigo, with ringing or roaring in the ears; and occasionally intolerance of light or sound, beating of the carotids, redness of the conjunctiva, flushing of the face, etc., indicating a strong vascular determination to the brain, if not positive meningitis. The throbbing headache of the first paroxysms generally settles into uniform dull sensation as the disease advances; and the violent pains in the back and limbs become more moderate, or ceases. *Delirium* though not very frequent at the commencement as the disease ordinarily appears, is now apt to set in; generally, however, not with severity, showing itself rather by a confusion of thought, especially when the patient wakes from sleep, than by any violence of action or speech. Sometimes there is drowsiness or stupor, sometimes apoplectic or paralytic symptoms, and sometimes also tetanic spasms; but the two latter sets of symptoms are rare. Another not unfrequent disorder of the nervous system is obstinate wakefulness, with restlessness and jactitation; and these may occur even in moderate forms of the disease. Hiccough is an occasional and very troublesome symptom, sometimes appearing early, but in general not till near the close.

Such are the symptoms which attend bilious fever when fully formed, and in the middle or somewhat advanced periods of its course. The student must bear in mind that they are not all present in the same case; indeed, some of them are mutually incompatible, and cannot therefore exist together; but all of them are so often to be met with that they could not be omitted in an account of the complaint. Various other incidental phenomena occur, which it is unnecessary to mention, as they are in no respect peculiar, and may take place in almost any febrile disease.

If the disease retain a distinct paroxysmal character, it generally runs on, when not interrupted, for two or three weeks, or more, terminating at last either by spontaneous solution at the end of one of the paroxysms, which goes off usually with a more

than ordinarily free perspiration, or in a regular intermittent, or in a kind of low typhoid affection, such as we shall describe directly.

If, as is more common in the somewhat severe cases, it approach the continued form, it generally advances, with more or fewer of the symptoms above enumerated, to some point of time between the seventh and fifteenth days; when it is to terminate favorably, it either declines slowly from the culminating point, with a gradual subsidence of all the symptoms; or ends abruptly with a profuse persiration, or with the occurrence of diarrhœa or diuresis; or changes into the intermittent form. The first and the last of these modes of termination are, perhaps, the most frequent.—The first signs of a favorable change are usually a steady diminution in the frequency of pulse; a return of moisture to the tongue, with an obvious disposition in the fur to withdraw from the tip and edges; and a softer, moister, and cooler state of the skin.—The one most to be relied upon, is probably the gradual cleaning of the tongue from its end and borders. Along with these signs of amendment, all the other phenomena of the disease gradually subside, and the patient enters into a convalescence which is apt to be permanent. When the disease goes off with a profuse perspiration, it has been observed that this is sometimes offensive to the smell. The diarrhœa, which occasionally appears to take the place of the perspiration, is usually bilious. Copious black tar-like discharges sometimes occur towards the close of severe bilious fever, and are considered as a favorable sign, especially in cases which have been attended with congestion and torpidity of the liver. A vesicular eruption upon the lips is apt to occur about the period of convalescence, and is also regarded as favorable.

In the immense majority of cases of bilious fever, recovery takes place in one of the above modes. But, in consequence of exhaustion following excess of excitement, or of disorganization produced by vascular congestion, or possibly from a loss or depravation of the vital properties of the blood, death frequently ensues in bad, and badly managed cases of the disease. Instead of the favorable symptoms above mentioned, as indicative of convalescence, others of an alarming character make their appearance. The pulse becomes more frequent, and at the same time smaller and more feeble, till at length it can scarcely be felt, and sometimes ceases entirely at the wrist some hours before death; coldness beginning in the hands and feet, gradually extends upwards through

the limbs, and even invades the trunk; the skin assumes a dusky, livid, or purplish hue, or, if yellow previously, becomes of a dark almost bronzed appearance; the extremities are covered with a clammy sweat; the tongue is dark-brown, clammy or dry, and sometimes chapped; hiccough not unfrequently occurs, sometimes with eructation of dark matter from the stomach; the abdomen is often tympanitic; black liquid matters, or dark blood, or a reddish serum like the washings of flesh, are discharged, often involuntarily, from the bowels; the urine is dark-brown, fœtid, and scanty, or quite suppressed: the features are collapsed, and the eyes often of a turbid or muddy appearance; low delirium, followed by stupor or coma, takes place; and the patient passes, usually without consciousness, into the dying state. Death, under these circumstances, generally occurs between the seventh and fourteenth days of the disease where our remedies do not cut it short.

In not a few cases, however, instead of following either of the courses above indicated, the disease, somewhere from the ninth to the twelfth day, takes on a new character, very much resembling that so frequently met with in enteric fever. All regularity in the recurrence of the paroxysms now generally ceases. The pulse becomes very frequent, often rising to 120 in the minute, and sometimes reaching or even exceeding 140, while it is small and rather feeble. The skin is dry, and either universally hot, or cold in some places and hot in others. The tongue is dry or dryish, often contracted, and of a brown or blackish color. Sordes often collect about the teeth, tongue, and lips. The sufferings from nausea, vomiting, and headache, diminish, or cease. The bowels, though in some cases costive, are in others loose, with unhealthy discharges, dark, bloody, or dysenteric. The urine is scanty or suppressor is retained, producing sometimes great distension of the bladder. Stupor or low delirium, with subsultus tendinum, picking of the bed clothes, slipping down in the bed, etc., supersedes the former cephalic symptoms. Not unfrequently the patient thinks himself in a strange place, and, insisting upon returning home, sometimes rises from his bed, and sinks exhausted upon the floor. At length, if relief is not obtained, profound coma sets in, the pulse sinks to nothing, the surface becomes cold, the countenance assumes the hippocratic expression, and death speedily follows.—When the fever takes on the character here described, it is often much protracted; sometimes running on for three or four weeks, or even longer. But, even in this form, it is very frequently curable. When it is about to take a favorable turn, the tongue be-

comes somewhat moist, and often, instead of cleaning from the edges and tip, throws off its fur in flakes first from the middle, or indifferently from any portion of the surface, which is left red and smooth, as if deprived of its papillary structure. Under these circumstances, convalescence may be expected, though it is always rather slow. In other cases, the tongue cleans in the ordinary manner, and then we may look for a more rapid recovery. Other favorable symptoms are the subsidence of delirium, the return of consciousness, and a more healthy condition of the various secretions. But the pulse often remains frequent for a considerable time after convalescence has commenced; febrile exacerbations occasionally takes place; and the patient sweats much during sleep. Gradually, however, the system regains strength, the mischief done to the various organs is repaired, and health is at length firmly re-established. Even this form of the fever sometimes ends in intermittent, and thus proves that it was not, what it might otherwise be thought to be, a pure case of enteric or typhoid fever.

The above description applies to bilious fever in its ordinary forms. But few diseases are more protean in their character than this. It would be utterly impossible, within the limits to which we are confined, to detail the various appearances described by authors, as exhibited by the disease in different places, and under different circumstances. We shall briefly allude to a few of the more prominent varieties; merely premising that in all of them there are evident, in some of the cases, certain signs, either full blown, or as it were in the bud, which mark the disease as miasmatic or bilious fever; more especially gastric irritation, yellowness of the skin, and a tendency to the regular paroxysmal form.

Sometimes the disease starts at once into existence with alarming violence. After a slight chill, or without any chill whatever, the patient may be seized with excruciating pains in the head, back, and limbs, a feeling of stricture across the chest, exquisite suffering in the epigastrium, incessant and enormous vomiting of bilious matter, by which the head is somewhat relieved, unquenchable thirst, and quickly supervening yellowness of the skin and eyes; the pulse being either frequent or slow, and the skin hot or cool, without materially affecting the condition of the case. Persons similarly exposed with those attacked as above, are occasionally seized with violent delirium at the very outset, rendering them dangerous to others and to themselves. Seamen on board ship endeavor to jump overboard, though this may possibly be

less from a disposition to self-destruction, than from an instinctive tendency to seek relief in the water. Sometimes the delirium is followed and relieved by the recurrence of the gastric symptoms already mentioned. After an uncertain duration, the violence of the attack subsides, and a remission follows, which gives way in its turn to a second paroxysm, and so on to the end. Notwithstanding the fierceness of the access, the disease frequently yields to remedies with great facility.

In the form of the disease above referred to, though there is great functional disorder in the encephalon, the stomach and liver appear to be the real centre of attack. In another form, it expends almost its whole force upon the brain. The patient is seized with coma, resembling almost precisely an apoplectic attack, though without paralysis. The face is red and turgid, the carotids throb, the pulse is full and strong without being very frequent, the respiration is slow and sometimes stertorous, and the pupils usually dilated. All the symptoms are those of strong determination of the blood to the brain. After a certain continuance, a remission takes place, and the patient recovers his consciousness, to fall again at the regular period into the comatose condition. It is generally by the remission alone that the nature of the disease can be ascertained. Sometimes death ensues from disorganization of the brain. Sometimes a collapse takes place, with symptoms such as those already enumerated in fatal cases of bilious fever.—The disease, however, often yields to energetic treatment. Occasionally there is paroxysmal stupor alone, without apople tic symptoms.

Another and most frightful form of bilious fever is the collapsed condition, generally known in this country by the name of congestive fever, which will be treated of under a different head. It may be proper, however, to observe, in this place, that an ordinary attack of bilious fever may, without warning, take on the form called congestive ; and, unless the practitioner is prepared for the event, will almost certainly prove fatal. The great danger is, that, when the patient is raised, perhaps with great effort, out of the paroxysm into which he has fallen, the practitioner may consider the amendment as the beginning of convalescence, and thus omit the measures necessary to ward off the death which is approaching with the subsequent paroxysm. The fact is mentioned here, in order that the young practitioner may be put upon his guard. Whenever, in bilious fever, a paroxysm occurs, of peculiar severity and danger, it should always be looked upon, when receding, as doing

so only in order to return with increased and perhaps fatal violence. It does not follow that it necessarily must return in this manner; but it is always safest thus to regard it.

Dysentery is, in some seasons, frequently associated with remittent fever. The *liver*, though always functionally deranged, is not often inflamed. Hence, there is seldom pain upon pressure in the right hypochondrium, though this does occur in some cases.—The *spleen* is occasionally painful and considerably swollen as shown by the dullness on percussion below the margin of the left short ribs. Inflammation of the *lungs* is not common in autumnal fevers; but the pneumonia which follows these fevers in the winter is very apt to be complicated with symptoms of miasmatic origin. The probability is that, in some at least of these cases, there is a conjunction of pneumonia and bilious fever. The *encephalon* is often inflamed in some one of its parts. Most frequently the membranes are affected; and then we have severe headache, active delirium, vertigo and tinnitus aurium, intolerance of light and sound, and often contracted pupils, ending, if not relieved, in coma, and at length in great and fatal prostration. Occasionally, though much more rarely, the substance of the brain is separately the seat of inflammation. This may be suspected, when there is original and persistent stupor or coma, without typhoid symptoms. Sometimes severe *rheumatic pains* are coincident with bilious fever.

Bilious fever is sometimes of a low, adynamic, or typhous character from the commencement. This may be the result of a previous exposure to causes calculated to depress the vital powers, and to deprave the blood; but it probably most frequently arises from the co-operation of a typhoid epidemic influence with miasmata. In such cases, connected with more or fewer of the characteristic symptoms of bilious fever before enumerated, are, at a comparatively early period in the disease, a dark and dryish tongue, with sordes about the gums and teeth; dark alvine evacuations, becoming in the end involuntary: flatulent distension of the abdomen; irregularity of respiration; a pulse either frequent or slow, slender or full, regular or irregular, but always feeble and readily compressible, and sometimes almost fluttering; a strong tendency to passive hemorrhage, as shown by oozing of blood from the gums, discharges of dark blood from the bowels, and petechiæ and vibices upon the skin; a dusky, livid, or purplish hue of the surface, often combined with the yellow of the bilious disease; irregular distribution of heat over the body; and

the early occurrence of low delirium, stupor, or coma, or, in their absence, of great restlessness, jactitation, anxiety and mental depression.

Authors have made varieties of bilious fever founded on the predominance of certain local symptoms, as the *gastric*, when the stomach is especially involved, and the *hepatic* when the liver is supposed to be prominently affected ; but upon the same basis we might erect many other varieties, as the cerebral, the pulmonary, the intestinal, etc. This is a quite unnecessary complication of nomenclature, and might lead to the erroneous conclusion, that there was something essentially different in the character of the affections.

The average duration of bilious fever, in all its forms, may be stated at about fourteen or fifteen days. It sometimes ends as early as the fifth or seventh, often about the ninth or eleventh day and is sometimes greatly protracted, even to four weeks or more. In malignant cases, it sometimes destroys life as early as the third day or even earlier; but such instances are comparatively rare.—Under appropriate treatment, it is often much shortened.

Treatment.—The principal indications to be fulfiled in the treatment of remitting fever, are—first, to moderate the febrile reaction of the arterial system, by removing the morbific cause; and second, to restore the healthy functions of the different diseased organs of the system.

With regard to the fulfilment of the first of these indications, it is recommended, that a prompt and free employment of the vapor bath, in conjunction with lobelia emetics, as the best possible way. The vapor bath should be often administered, before and after the emetic at least, in order to prevent a congestion, by equalizing the circulation, and directing the determining powers to the surface. Either in local congestion, visceral inflammation, or gastro intestinal irritation, the vapor bath must be used freely, as the very best means of relief. In cases that are attended with violent pains in the head, a full, vigorous, and hard pulse, with hot and dry skin, an emetic is also unquestionably, decidedly indicated, and ought not to be neglected. In short, thorough courses of medicine should be given in quick succession, if the symptoms are violent, as long as there is any appearance of the fever, and other symptoms which clearly show that the morbific causes are not removed, not forgetting in the mean while, suitable tonics and stimulants to keep up the strength of the patient. The bowels, in all cases, must be emptied by some mild laxative; bit-

ter root, for instance, which will seldom fail to relieve the patient very much. Drastic purges, by determining inwardly, and increasing the irritability of the stomach and bowels, would certainly be very prejudicial; and, therefore, if it is necessary to obviate costiveness in the course of the disease, laxative medicine, assisted by suitable clysters, must be resorted to, avoiding all irritating substances taken as food. After the system is rid of morbific materials, the second indication may be answered by resorting to the tonic and stimulating treatment alone. Golden seal is mostly to be relied on as a tonic; it is decidedly an alterative and laxative, and these two properties combined with its tonic or stimulating quality, make it rank among the best, if not the very best, article in the Materia Medica, for accomplishing the second indication. It must in all cases be remembered, that our duty as a physician is only half performed, when we have cleansed the system of morbific matter. The system must then be placed in a condition in which it will be able to resist the influences of morbid causes. Then laxative tonics, light and nourishing food, with the proper quantum of stimuli, will in all cases be necessary after the patient is convalescent.

The use of mild, cool, and ascidulated beverages ought to be enjoined as an important item in the treatment. Independent of the effects which such drinks have in blunting the acrimony of the fluids lodged in the alimentary canal, they exert a soothing influence upon the system, by supplying the intestinal absorbents with a fresh and wholesome fluid, and thereby preventing or lessening the absorption of irritating or vitiated matters from the bowels. Lemon and sugar are the best diluents for this purpose.

In short, never abandon regular courses of medicine as long as there is an appearance of morbific materials in the system, and then resort to the tonic treatment, and not before. Mucilaginous drinks may be freely used.

The *external application of cold water* is also highly beneficial, in the febrile exacerbations. Much comfort will be afforded by simply sponging the arms, feet, and face; but a more efficient method of application, in reference to a solution of the paroxysm, is that of effusion, as recommended by Dr. Currie, of Liverpool. Dr. Dickson, who has had much experience with this remedy, considers it as an efficient and safe substitute for the lancet, and recommends it in the strongest terms. In relation to the mode of using it, he says: "Seat your patient in a convenient receptacle, and pour over his head and naked body, from some elevation, a

large stream of cold water; continue this until he is pale or his pulse loses its fulness, or his skin becomes corrugated and he completely relaxed, and a copious perspiration often follows. The remedy should be employed only when the surface is universally hot and dry, without any sense of chilliness on the part of the patient. It is not applicable, according to Dr. Dickson, to patients of "feeble habit of body, much advanced in age, or much exhausted or enfeebled at the time," nor to cases attended with oppressed or inflamed lungs, or with diarrhœa. Should it occasion protracted chilliness and rigors, with continued discomfort to the patient, it should not be repeated.

In mild cases of remittent fever, few other remedies will be required besides those above detailed. When the remissions are very distinct, and approach the character of intermissions, the cure may often be greatly hastened by the use of quinia. But violent and threatening cases demand additional treatment.

Sulphate of quinia is another all-important remedy, in the treatment of certain cases of bilious fever. It has before been stated that, in ordinary cases, it will often shorten the duration of the disease, if given in the remission, after this has become decided, so as to approach an intermission. Should no signs of cerebral or gastric congestion be present, and the activity of the circulation has subsided or been subdued, this medicine may be ventured upon whenever the remission has the character above mentioned. From twelve to eighteen grains, given in divided doses during the remission, will often be sufficient to prevent the paroxysm; and if not, a repetition of the same amount in the next interval will rarely fail. There are some who advise this treatment, in all cases of bilious fever, whether with very obvious remissions or not. Nay, they go so far as to maintain that the medicine may be given without any reference to exacerbation or remission, being as little injurious in the former as in the latter.

But there are circumstances in bilious remittent fever, which render quinia of the utmost value. When a paroxysm of great violence has occurred, from which the patient has been saved only by the most strenuous exertions, and there is every reason to fear that a similar one will prove fatal, recourse should be had to the sulphate of quinia, in the remission, however imperfect or short it may be. When the fever has hitherto shown little or no tendency to remit, and the grade of violence is such that fatal results appear imminent, should the slightest remission show itself, and the symptoms not be those of cerebral inflammation or strong determi-

nation, the quinia should be poured in without stint. The more nearly a case approaches to the above extremes, the stronger is the indication for the use of the antiperiodic medicine.

No drink is so agreeable, and none on the whole more suitable, during the febrile exacerbations, than ice-cold water. It should be taken in small quantities, not exceeding two or three swallows at a time, and frequently. The patient also derives great comfort from small pieces of ice held in his mouth, and allowed slowly to dissolve. The drink may be varied by substituting, now and then, for pure water, orangeade or lemonade, apple-water, tamarind-water, or water flavored with current-jelly, blackberry-jelly, molasses, or freshly toasted bread. We have often found very acceptable to patients, in fever, a beverage consisting of weak molasses and water, with a little lemon-juice, and a piece of toast, and kept cool by ice.

The liquids above mentioned contain sufficient nutritive matfor the first day or two of the fever; but, as the complaint advances, something a little more nourishing may be given, as gum arabic dissolved in water in the proportion of an ounce to the pint, and flavored, if deemed advisable, by sugar, lemon-juice, etc., barley-water, and any other pure and weak farinaceous drink. The patient may also suck the juice of oranges, or swallow that of sweet grapes, discarding the skin, pulp, and seeds.

At a still more advanced period, especially in the remissions, and at all times in the remission if it be distinct, the patient may take a cup of black tea, with a piece of dry toast, morning and evening; or his strength may be supported by panada, by gruel of oatmeal, ground rice, or Indian-meal, to which a little milk may often be added, or by preparations of sago, tapioca, or arrow-root suitably flavored. He may also be allowed a little well-roasted apple, or stewed fruit, care being taken that nothing hard or peculiarly difficult of digestion be admitted into the stomach. It is necessary that the physician should be provided with a diversity of articles of drink and food, in order to meet the incessant demands, the squamish appetite, and the ever varying caprices of the sick. Happily, there is usually, during the fever, a disgust for food, which prevents the patient from taking it in injurious quantities, provided the injudicious interference of friends and nurses be guarded against.

Should the failing strength require further support, as often happens in protracted and in typhoid cases, a little milk may be allowed, or animal broths or jellies; and sometimes it become

necessary to have recourse to the most stimulating food, as essence of beef or mutton, milk-punch, egg and wine, etc.

In convalescence, it is very important to regulate the diet, both as to quality and quantity. Bread and butter, buttered toast, or milk-toast, boiled rice, mealy potatoes, weak broths, soft-boiled or poached eggs, oysters, boiled flesh of poultry, the broiled breast of birds or chickens, and finally the more easily digested meats in general, may be used in the order suggested, beginning with the lighter, and gradually rising to the more nutritious substances.—When the appetite is somewhat languid, we have found that it is often sufficiently stimulated by a little crisp boiled lean of ham, or frizzled dried beef. When it is excessive, it often happens, the greatest caution should be observed against over-indulgence.

During the whole course of the disease, the patient's chamber should be well aired, and light and noise excluded. The covering should be just so much as is calculated to make the patient most comfortable. The bed and body linen should be frequently changed, all excrementitious matter quickly removed, and the air of the chamber sweetened and rendered refreshing by burning sugar after each fecal evacuation, or by sprinkling the apartment with lavender-water, aromatic vinegar, or something of the kind. No persons should enter the room except the attendants, and all conversation upon business, or exciting subjects, should be as much as possibly avoided. When convalescence has commenced, all that can recall unpleasant associations should be removed from the apartment, light should be gradually admitted, the society of friends cautiously restored, and the patient allowed to resume, by degrees, his ordinary habits.

When there is frequent retching, with discharge occasionally of a mouthful of bile or other acrid liquor, indicating that there is offending matter in the stomach, immediate relief will be afforded by an emetic of lobelia. This is far preferable to ipecac. which is more or less irritating; in fact, there are few cases where ipecac. should be used, or even combined with lobelia, where the latter can be obtained.

Where the head is hot and painful, much ease may often be obtained by applying towels wet in ice water, or placing the head of the patient over a basin, without the bed, and pouring over it a stream of cold water. In the mean time let the feet be placed in hot water, or hot applications put to them. If there is much restlessness, let Bankston's Anodyne be given, with nauseating doses of lobelia.

TYPHUS MITIOR—TYPHOID FEVER.

Description and Causes.—This is a common febrile affection, presenting a considerable diversity of symptoms, yet having in general a certain recognizable character, and probably constituting in all its forms, one and the same disease. It is the ordinary endemic fever of Europe, and of those portions of the United States in which the miasmatic or bilious fevers do not prevail, and is more or less mingled with the latter within their own special limits. Indeed, the probability is that it belongs to the whole human family, and is to be found in all inhabited regions. Though long known in its different forms, its identity in these forms was not clearly perceived until after the researches of Louis, which, by determining its anatomical, in connexion with its exterior character, gave us the means of recognizing it under every variety of aspect.

The nomenclature of this disease is unsettled and perplexing. By some writers it is denominated *continued or common continued fever;* but this term is not sufficiently distinctive; as other fevers, equally common in many situations, are equally continued; and, in fact, English authors confound under the title two affections, which are probably quite distinct; namely, the disease under consideration and proper typhus fever. The name of *typhoid fever*, applied to the disease by Louis, and now much in use, is still more unfortunate. Independently of the fact, that the complaint is not essentially typhoid, and that it very often runs its whole course without any symptom analogous to those which characterize typhus fever, there is the strong objection, that any other febrile affection may equally assume the typhoid form; so that a mere epithet, applicable to a common condition of disease, is thus appropriated to a distinct complaint, and must inevitably lead to frequent misconceptions. Bilious fever, yellow fever, the plague, the different exanthematous fevers, and all the phlegmasiæ may become typhoid, as well, though not, it is true, as frequently as the one in question. It is highly desirable, therefore, that the name should be abandoned, though there is reason to apprehend that it has already taken root too deeply to be easily eradicated. There can be no doubt that the affection, denominated *typhus mitior* by the older writers, was very often that which we are now considering; but the name is objectionable, as implying only a difference in degree between this and true malignant typhus. *Nervous fever*

is less inappropriate than either of the preceding titles; as the disease is pre-eminently marked by nervous disorder, and the cases to which the name has been applied have probably in general belonged to it. But almost all fevers, indeed we may say without qualification, all fevers are attended with some degree of nervous disorder; for this enters into the very definition of the term fever; and the title, therefore, is not sufficiently distinctive.

Nothing precisely is known of the cause of enteric or typhoid fever. The circumstances of its production are very diversified. It is certainly often generated in situations where human beings are crowded together, with insufficient or unwholesome food, and a confined and vitiated air. Hence, it appears to originate especially in prisons, badly ventilated hospitals, largs cities, camps and ships. It is a well-known fact, that young persons, coming from the country into large cities to reside, are very apt to be attacked with it. This has been observed in Paris, and is often noticed in Philadelphia and New York. The elder residents are less liable to be affected.

From the above facts, it might be inferred that the disease is produced by effluvia from the human body, or human excretions in a state of decomposition. But it also not unfrequently originates in the pure air of the country. We have met with it in the healthiest regions of our country, even among the mountains.

It has been thought by many to be contagious. Strong facts have been adduced, both in Europe and the United States, in support of this opinion. Thus, an individual coming into a healthy vicinity, from some place where disease prevails, is taken ill with it; and several days afterward, others residing in the same house are seized, and the complaint spreads among the neighboring population. Such instances are recorded by Dr. Austin Flint of Buffalo, New York, by Dr. Samuel Jackson, formerly of Northumberland, Pennsylvania, by the late Dr. Nathan Smith of Connecticut, and by several French authors. But against the opinion of its ordinary contagiousness is the fact, that it is constantly springing up in isolated cases, without any possible communication, and that, in such instances, it is very seldom if ever, imparted to others.

It is very apt to prevail epidemically in country places; and one of its peculiar characters, when thus originating, is that it is apt to be confined to limited districts, in this respect very much resembling scarlet fever. In the British Islands, it appears to be

occasionally associated with the typhus epidemics to which those regions are subject.

Certain individuals are much more predisposed to it than others. Age has a great influence over this predisposition. It rarely attacks persons beyond thirty years of age, still more rarely those beyond forty, and very seldom indeed those beyond fifty—Of 255 cases observed by Louis and by Chomel, 78 were from fifteen to twenty; 95, from twenty to twenty-five; 54, from twenty-five to thirty; 22, from thirty to forty; 5, from forty to fifty; and only one above fifty. From the above statement it would appear not to occur in children below puberty. Bnt the cases referred to were in hospitals, where children were not admitted.—The fact, at any rate, is, that the disease does occur, and has been frequently noticed in very early life. We have repeatedly seen it in children under ten.

It is generally admitted not to occur twice in the same person. This fact will explain its comparative unfrequency in the aged.—Those who are susceptible to the disease will be likely to have it before they have attained middle life. The same fact has been adduced as an analogical argument in favor of its contagiousness.

It may occur at any season, but is probably most common in the autumn and winter.

Fatigue, exposure to the sun, vicissitudes of weather, and mental disturbance, appear sometimes to have acted as exciting causes.

On the whole, the most rational view of the etiology of enteric fever, in the present state of our knowledge, seems to be, that an inherent predisposition to this disease exists in many persons, analogous, in some measure, to the tuberculous, the gouty, and the rheumatic predisposition, which is liable to be called into action by by various exciting causes, perhaps by almost any cause capable of considerably disturbing the vital functions; but that all persons do not have the predisposition, and that it is generally exhausted by one attack of the disease. Hence its occurrence after fatigue, exposure to heat and cold, mental anxiety, etc. It is not improbable that the effluvia engendered by decomposing animal excretions, the contagious miasm of typhus itself, epidemic influence, and even marsh miasmata, may act as exciting causes of the disease in the predisposed. Admitting this to be the case, we are furnished with a clue to the varieties of character which it assumes. If the exciting cause have nothing of a depressing nature in it, we may have an open inflammatory or sthenic case. If it be depressing, as the contagion, animal exhalation, or epidemic influence

which produces typhus, we shall have a low, asthenic, or typhous case; in other words, there may be typhus superadded to enteric fever. So, also, marsh miasm, in calling the predisposition into action, may produce that sort of complication, which we occasionally witness, of the remittent, or bilious and enteric fevers. Even the occasional apparent contagiousness of the disease may be explained upon the same principle. Supposing the true typhus to be superadded to the enteric fever, the contagion generated by the former may be sufficient to induce the latter in other individuals who may have the predisposition. Indeed, the typhous state, in whatever disease it occurs, may be supposed capable of generating a miasm, which shall produce the same state in other persons, and at the same time bring into action other disorders to which the system may be predisposed from inherent causes, or from external, such as epidemic influence. Hence, perhaps, the seeming contagiousness, sometimes, of typhus dysentery, malignant erysipelas, etc., etc.

This disease has been supposed to be a mere gastro-enteritis. But inflammation of the stomach is often wanting; and the course of the symptoms is in general wholly different from that of ordinary mucous enteritis. Dissection, moreover, has proved a distinction between the two affections by making known the diseased state of the glands of Peyer. Another opinion considers the disease, though differing from ordinary enteritis, as consisting essentially in the peculiar state of these glands; all the other phenomena resulting from this affection, just as the fever in pleurisy results from the inflammation of the pleura. But this is scarcely more tenable than the former. The general symptoms bear no certain relation in the intensity to the degree of the local affection. It has, indeed, never been proved that this begins with the disease; and there is reason to believe that, in many cases at least, it may not commence till some days after the fever. Nor does there seem to be any necessary connexion between the intestinal affection and various other symptoms, such as the frequent occurrence of epistaxis at the commencement, the great tendency to stupor, the frequent bronchial inflammation, the peculiar condition of the spleen, the rose-colored eruption, etc. The great probability is, that the disease of the intestinal glands is a sort of internal eruption, like that of smallpox upon the skin, and, like it, merely a characteristic attendant upon the complaint. It is not, indeed, certain that this glandular affection is absolutely essential. As to the real nature of the fever, we are in the dark, as we are, in fact, in relation to

all the essential fevers. It seems to bear a close relation to the exanthematous fevers, not only by the intestinal affection, which, as before stated, may be looked upon as an internal eruption, but also by the rose-colored spots, which are so commonly present at some stage of the disease. How it happens that the complaint should be sometimes inflammatory, and sometimes typhous, has been already explained. Its tendency, even when inflammatory in the beginning, to assume a low form analogous to typhus in the end, is probably owing to the general loss of power incident to the long continuance of the fever, and especially to the depravation of of the blood, arising from disease of the structures through which nutriment reaches the circulation, namely, the intestinal mucous membrane and the mesenteric glands.

Diagnosis.—The disease sometimes begins abruptly by a chill, followed by the usual symptoms of fever; but, as it occurs in this country, it more frequently comes on insidiously, and increases gradually, so that it is often impossible to fix the precise point of commencement. The patient is uncomfortable, and complains, perhaps, of weariness, general uneasiness, soreness or numbness of the limbs, and often of a little headache; the skin is somewhat heated, the face flushed, and the pulse accelerated; the tongue, if examined, is found to be very slightly coated with a thin whitish fur: the appetite is impaired, though not quite extinguished; and these symptoms continue, with a slowly increasing intensity, but with a tendency to daily remission, for several days, sometimes for a week, before the patient feels himself sufficiently ill to take his bed. Frequently, during this period, slight chilliness alternates with febrile sensations; though it sometimes happens that the patient complains of no chill whatever, and distinct rigors or shivering are rare. When the disease is completely formed, the chilliness ceases, and does not return, unless, perhaps, at the commencement of some incidental inflammation. There is also not unfrequently, during this inchoative stage, some looseness of bowels, amounting often to diarrhœa; and, when this is not the case, there is generally an extraordinary susceptibility to the action of cathartic medicine, which operates in much smaller does than usual, or, if given in the full dose, produces more than the usual effect.

The disease, being now fairly under way, exhibits the ordinary phenomena of fever; such as frequency of pulse, heat and dryness of skin, flushed face, pains in the head, complete loss of appetite, thirst, and great general weakness. But the symptoms are also

somewhat peculiar. The pulse, though sometimes but moderately accelerated, not exceeding 90 or 100 in a minute, and of considerable fullness and strength, is in other instances, and especially in females, very frequent, small and compressible, often amounting to from 110 to 120 or more. The flush in the face is of a somewhat more purple tint than in most other cases of fever; and when it is absent, there is not unfrequently a dusky hue of the complexion, with a certain heaviness or dullness of expression, which may be very slight in some cases, but is very striking in others. Headache, in some degree, is very seldom absent; and not unfrequently it is the chief subject of complaint. The patient also often experiences pains in the back or limbs, and sometimes has a feeling of universal soreness, as if bruised, or greatly fatigued. Sometimes there is much restlessness, with want of sleep. A characteristic symptom is, in many instances, the occurrence of bleeding at the nose, which, however, is generally slight, and no otherwise important than as a sign. In very many cases, a tendency is observed in the febrile symptoms to remission, sometimes daily, sometimes twice a day; and occasionally the exacerbations subside with slight perspiration; though this is much less frequent and more sparing in enteric, than in bilious or miasmatic fevers.

These symptoms continue with little other change than a gradual increase, for several days. The pulse becomes more frequent and less strong; the skin acquires a heat and aridity which are often described as acrid or pungent; the obtuseness of countenance and duskiness of complexion deepen; the tongue remains slightly covered, or coats itself with a thicker fur, in either case showing a tendency to dryness or clamminess, and often appearing red at the tip and borders; the stomach, though often retentive, is sometimes irritable; diarrhœa is not unfrequent; transient pains are often felt in the abdomen, increased by pressure, especially in the right iliac region; and a slight degree of tympanitic distension in the bowels is discovered upon percussion, with a gurgling sound upon pressure by the hand. A cough frequently sets in, either dry, or accompanied with a slight mucous expectoration; and the physical signs of bronchitis are detected by the stethoscope. The urine is sometimes little changed, sometimes scanty, high colored, and offensive. Such is the course of the disease, until about the seventh or ninth day from the time of complete formation.

Other symptoms are now superadded. The tongue, previously moist or clammy, often becomes dry, and assumes a brownish col-

or. Deglutition is sometimes painful or difficult. The abdomen is often distended, so as frequently to present a convex outline from the ensiform cartilege to the pubes, when the patient is on his back, and upon percussion, sounds hollow or tympanitic. If the surface be carefully examined, red spots like flea-bites will show themselves, usually appearing at first in small numbers upon the abdomen, but afterwards increasing, and sometimes extending to the chest, even to the limbs and face. At the same time, a close inspection will often detect an eruption of small vesicles, called sudamina, upon the neck and upper part of the chest, and occasionally also on other parts of the body. The nervous symptoms become more decided. Delirium or stupor often takes the place of the headache with which the patient had been tormented.—Ringing or buzzing in the ears is followed by hardness of hearing, amounting sometimes to deafness. The eyes are often injected.—The tongue is protruded with difficulty, and is occasionally observed to tremble in the effort.

If the disease continue, a completely typhus condition is at length developed. The tongue is often incrusted with a brown or black coating, or is dry, gashed, and sore; while dark sordes collect upon the teeth, gums, and lips. The pulse becomes exceedingly frequent and feeble. The surface is either universally hot and dry, or hot in some parts while it is cool in others; and a peculiar unpleasant odor often exhales from the body; subsultus tendinum, twitching of the facial muscles, and even epileptiform spasms sometimes make their appearance. The patient is very feeble, lying on his back, and often slipping involuntarily in the bed. He picks at the bed clothes, or at imaginary objects in the air; mutters half-formed, delirious sentences, or exhibits a profound coma; and sometimes, under the influence of a potent delirium, attempts to rise from his bed, and, unless guarded, reaches the door of his chamber, and perhaps falls exhausted. Other occasional symptoms are involuntary fecal evacuations, retention of urine, hemorrhage from the bowels or nostrils, and petechiæ and vibices upon the skin. Vitality is so feeble in the skin, that the surface often sloughs, and gangrenous eschars are produced in parts exposed to continued pressure, as over the sacrum, or upon the hips.

Finally, if the case is to end unfavorably, the pulse gives way, and becomes either excessively frequent and fluttering, or slow and scarcely perceptible; the extremities become cool and clammy, or the whole surface is bathed in a clammy sweat; the ab-

domen is often enormously distended ; hiccough sometimes occurs ; the countenance assumes the hippocratic aspect ; and life is quietly and almost insensibly extinguished. Sometimes, however, when the fatal issue takes place at an earlier period, death is preceded by apparently painful struggles or convulsions.

When a favorable termination is to take place, the tongue becomes moist, and begins to clean itself gradually at the tip and edges ; the pulse lessens in frequency and acquires greater fulness ; the skin relaxes, becoming cooler and less dry ; the stupor or delirium subsides ; the patient pays more attention to things around him, and exhibits more solicitude for himself ; the abdominal distension diminishes, and some inclination for food returns, or at least less aversion for it is displayed. Convalescence, under these circumstances, speedily takes place ; and not unfrequently the emaciation becomes more evident at this moment than it was before.

In other instances, especially in severe and more protracted cases, the course is somewhat different. Instead of cleaning gradually from the edges, the tongue throws off its fur in flakes, generally at first from the centre or towards the base, leaving the surface smooth, red, and somewhat shining, is if the papillary structure had been partially destroyed. This state of the tongue is sometimes preceded by soreness of the fauces ; and the velum pendulum and half arches will, if examined, be found covered with an exudation, which they are beginning to part with. This is usually a sign of an aproaching amelioration of the symptoms.— If the tongue, when thus cleaned, remain moist, convalescence may be pretty confidently expected, though it is always tedious. In some instances, the tongue coats itself over again, and again becomes clean ; and this change may take place more than once. Occasionally, too, a thrush-like exudation appears upon its surface. But still, if the moisture continue, the prognosis is ultimately favorable.

If, however, at any time during the above cleaning process, or even after it has been completed, the tongue should become permanently dry, the symptoms are again aggravated, and the patient again thrown into danger. Dr. Wood ascribed this result to an increase of the intestinal disease, which is a prominent feature in the complaint, and found it to yield most happily to treatment addressed to that affection.

But, as before observed, the convalescence after this mode of cleaning of the tongue is always somewhat tedious, and often very

much so. It implies a degree of mischief to the organization which time only can repair. Sometimes months elapse before the patient recovers his usual health. The pulse remains long frequent, a febrile paroxysm somewhat resembling hectic occasionally appears every day, there are copious and debilitating sweats at night, the appetite is feeble, and the bowels are disturbed by slight causes. Troublesome nervous symptoms also frequently occur; such as wakefulness, depression of spirits, weakened memory, childness fretfulness, and sometimes a kind of imperfect delirium or insanity, though this is rare. The lower extremities sometimes become painful and edematous. Troublesome and tedious abscesses occasionally break out, especially near the parotid; and boils appear in various parts of the body. At length, these symptoms gradually disappear, the appetite returns, and even becomes insatiable, and the patient rapidly acquires strength and flesh. Not unfrequently, the premature or excessive indulgence of the appetite causes disagreeable intestinal symptoms; and we have known it apparently to be the cause of a fatal relapse. The patient generally loses his hair, which, however, grows again; and the cuticle of the palms of the hands and soles of the feet is apt to desquamate.

There is occasionally a fatal termination of this disease, of a peculiar character, which it is necessary to notice. The patient is suddenly seized, without any premonition of danger, perhaps even in the midst of convalescence, with violent pains in the abdomen, which it also exceedingly tender to the touch. Sometimes there is no pain; but only tenderness. The knees are drawn up, and the face assumes an anxious and even ghastly expression.—Rigors, an exceedingly frequent and contracted pulse, obstinate vomiting, and constipation, are also frequent symptoms. A collapse of the circulation and of the surface precedes death, which takes place usually within a day or two, though life is sometimes prolonged for a week. The cause of these symptoms is a perforation of the intestine, and the escape of its liquid contents, producing inflammation of the peritoneum. It is more frequently the mild than the aggravated cases of the disease, that are liable to this serious accident. It occurs at variable periods in the progress of the complaint, having been noticed as early as the twelfth day, and as late as the fortieth.

The duration of this disease is uncertain, but usually protracted. Death may take place on the sixth or seventh day; but so early a termination is very rare. Generally it occurs in the course

of the second or third week, and sometimes not till the end of six weeks or even later. The period of convalescence is equally variable. It sometimes begins on the eighth or ninth day, but very rarely before the third week. Even the mildest cases run on to the fourteenth or fifteenth day; those of a severer character seldom become convalescent before the end of the third or fourth week; and not unfrequently we witness recoveries even after the sixth week. The average duration of cases may be stated at from twenty to thirty days. The disease seldom lasts longer than sixty days, though it has no fixed limits.

Certain symptoms which occur in the course of the disease are so important, in reference to diagnosis or prognosis, as to require separate consideration.

Diarrhœa, according to Louis, is an almost uniform symptom, having been absent in only three of the cases examined by him.—It must be remembered, however, that the occurrence of liquid stools constitutes diarrhœa in the estimation of that author, though there may be only one daily. But even with this limitation, the observation is not applicable to the disease as it occurs in this country. Diarrhœa is undoubtedly frequent, so much so, indeed, that it may be considered among the diagnostic symptoms; but it is also not unfrequently wanting. We have noticed, however, that, even when there is apparent constipation, the bowels are acted on by purgative medicine much more readily and abundantly than in most other febrile diseases. So much is this the fact, that in a doubtful case of fever, an unusual or extraordinary effect from purgative medicine should have some weight in influencing the decision of the nature of the disease. The diarrhœa sometimes precedes the fever; but more frequently commences during the first twenty-four hours after the attack, and is occasionally postponed to a much later period. The stools may be only one or two daily, or more frequent, up to ten, twelve or more. They are generally yellowish or brownish, and apparently healthy, except in consistence. This is one of the remarkable features of the disease.—While in other severe fevers the discharges are almost always greatly altered, in this, they often remain nearly natural with the exception alluded to, throughout the complaint. Sometimes however, they are black or bloody, especially in the advanced stages; and, in a relatively small number of cases, they are dysenteric.—The diarrhœa undoubtedly depends upon the inflammation or irritation of the mucous membrane; but has not been found to bear any fixed relation to the characteristic disease of the aggre-

gated intestinal glands. It is generally attended with *pains in the abdomen*, which, though not usually very severe, are often troublesome. When wanting, they may sometimes be elicited by pressure. They may be present also when there is no diarrhœa.

Tympanites, in a greater or less degree, is an almost constant attendant of enteric fever. We have very seldom witnessed a case without some degree of it. It does not begin with the disease; coming on usually about the seventh day, though sometimes as early as the third. At first it is not very obvious. There may be a slight increase of tension in the abdominal parietes; but percussion is necessary to the certain detection of the symptom.—It increases as the disease advances, and soon becomes obvious to the eye. In general it bears some proportion to the severity of the disease, being moderate in mild cases, and greater in the severe. Sometimes it is very great, causing an enormous distension of the abdomen, so as to interfere with respiration by pressure upon the diaphragm. Under these circumstances, it occasions great distress to the patient. It is also injurious by distending the bowels, so that they cannot act on their contents. This morbid collection of air is chiefly in the colon; the small intestines being comparatively little affected.

The *rose-colored eruption* is one of the most characteristic phenomena of enteric fever. This consists of small red spots, usually roundish, and about a line in diameter, though sometimes larger, often slightly prominent, and disappearing under pressure with the finger, to return upon the removal of the pressure. They are never seen at the commencement of the disease, but generally first make their appearance between the seventh and fifteenth days, and occasionally later. They occur in general first and most numerously on the abdomen, extending afterwards to the breast, and occasionally also to the extremities, and even to the back and face, though very rare in the last mentioned position.—We have seen them abundant on the upper and inner part of the thighs, and confined to that place. Their number varies greatly, sometimes being almost countless. They appear in successive crops, each lasting three or four days, and then gradually fading; and the whole period of the eruption varies, according to Louis, from three to fifteen days. Though present in the great majority of cases, at some period in the progress of the disease, they are not in all. Out of seventy cases referred to by Chomel and Genest, they were absent in sixteen, or about one-quarter.

These spots must not be confounded with petechiæ, which also

appear in this disease, but are not peculiar to it. The latter can scarcely be considered strictly as an eruption; consisting merely of blood extravasated in the skin. They are distinguishable usually by their more livid color, by never projecting above the surface, and by not disappearing upon pressure. They occur much less frequently than the rose-colored eruption, and are more common in genuine typhus fever than in the enteric. Sometimes the hemorrhagic effusion is more extensive, consisting of patches or vibices.

Sudamina are minute vesicles, generally about the size of a small pin's head, but sometimes larger, either circular or oval, and in consequence of their minuteness and transparancy, often requiring to be viewed obliquely in order to be seen. They may frequently be detected by the touch. They occur usually on the neck and upper part of the chest, especially towards the shoulders, or near the axilla or groin; but may sometimes be seen upon the trunk and limbs; and to cover thickly almost the whole body except the face. The period of their eruption is generally later than that of the red spots, being rarely earlier than the fourteenth day. They are also less constant, and less characteristic, occurring in other febrile affections as well as in that under consideration.

Cough and the *bronchial rales* are very common in this complaint. The cough is either dry, or attended with a slight mucous expectoration, with very little or no soreness or sense of oppression in the chest. The dry sonorous and sibilant rales may be heard more or less extensively over the thorax, and are much greater in proportion to the amount of oppression or dyspnœa than in ordinary catarrhal affections. They thus afford an important diagnostic sign. They are not, however, present in all cases. Sometimes they begin with the disease; but more frequently not until the lapse of about a week. Occasionally they give place to a crepitant or sub-crepitant rale, indicating the occurrence of inflammation in the parenchyma of the lungs.

The *pulse* is generally frequent, sometimes in the early stages full and strong, sometimes even from the commencement rather feeble, and almost always becoming so as the disease advances. It is, however, very different in some cases. A moderate degree of acceleration, with some fullness and strength, is not uncommon in mild cases, and in the early stages of those which are more severe. But if there be any one condition of pulse more characteristic than another, it is that of frequency, smallness, and want of strength. Such is often its condition at the outset; and, when

this is not the case, there is a very general tendency to it in the progress of the disease. The number of pulsations is often at first from 110 to 120, and sometimes increases to 130, 140, and even to 160, before the close. In the last stage, along with its frequency and feebleness, it is occasionally irregular and intermittent; and Louis has found this condition, in most cases, associated with softening of the heart. Instead of increasing in frequency in the prostrate state of system, it sometimes becomes even slower than in health, and exceedingly feeble, indicating an absence of irritating influences, or an extraordinary insensibility to their action.—In the former case, this condition of the pulse is favorable, in the latter it may be otherwise.

Hemorrhage is not an unfrequent symptom of enteric fever.—In the early stage, it takes place from the nostrils, and is highly characteristic. The epistaxis is usually very moderate, often not exceeding a few drops, and very seldom in any degree alarming. In some rare cases, however, it is more copious, especially at a late period, and demands the interference of remedies. But, in relation to its effects, *hemorrhage from the bowels*, which occasionally takes place in the advanced stages, is much more important. This is often, at the same time, a bad sign, and injurious by the exhaustion it produces. It requires the careful attention of the practitioner, and the stools should always be examined in reference to it. In some instances, the blood is red and but little changed, in others it is blackish and disintegrated. Occasionally bleeding takes place from other mucous surfaces; and petechiæ are nothing more than examples of an interstitial hemorrhage.

The *nervous symptoms* are peculiarly prominent in enteric fever. *Headache* has been already referred to as one of the most common and troublesome symptoms. It is seldom entirely wanting throughout the case. In general, it is heavy and dull rather than acute, most frequently occupying the forehead and eyes, though sometimes occurring in the back of the head, and sometimes affecting the whole head. The eyes are occasionally sore to the touch, or upon motion. Not unfrequently, also, pain is felt between the shoulders, and in the loins and extremities; but this generally soon ceases.

The headache usually continues for a week, after which it often gives way to stupor or delirium, and does not return when these are dissipated.

Dulness or *hebetude* of mind is one of the most common symptoms, often appearing early in the disease, and showing itself in

the expression of countenance, which is apt to be blank, apathetic, or dejected. There is often an indisposition to be disturbed, and the patient answers questions reluctantly, or shortly, as if vexed. This heaviness usually increases as the disease proceeds, till it amounts to drowsiness, stupor, and even coma; but this is seldom so profound that the patient cannot be roused by speaking to him in a loud voice. The stupefaction does not yield the comfort of sleep; for the patient often complains, in the midst of it, of a want of rest. Instead of it, there is sometimes morbid vigilance, with great restlessness and jactitation.

Delirium often appears after several days, but usually not in any considerable degree until the seventh day or later. In general, it is mild, indicating rather want of power in the brain than irritation. If the attention is strongly fixed, the mind often acts correctly; and it becomes wandering only when left to itself. This wandering is especially observable upon waking from sleep, and in the night. In some instances, however, the delirium is violent and even furious, so that the patient screams loudly, and requires force to restrain him. Occasionally it is fantastic, and somewhat hysterical, inducing the strangest and most whimsical notions, and corresponding actions. In the last stages of the disease, the delirium is apt to become low and muttering; the patient lying with his eyes half closed, and uttering, in a low or whispering voice, broken sentences, having only a vague connexion. Occasionally, however, even in this stage, it is violent; and the patient, unless restrained, will rise from his bed, and even leave his chamber.—The stupor and delirium sometimes alternate, and are not unfrequently combined. The latter is usually later in appearing than the former.

Hardness of hearing is another highly characteristic symptom, which we have not observed so strikingly or so frequently in any other febrile disease. Sometimes it is slight, sometimes so great as to amount almost to deafness. It does not usually occur in the first stage of the fever. It is not unfrequently preceded or accompained with tinnitus aurium.

A *tendency to sloughing of the skin* is much more striking in the advanced than the early stages. It shows itself particularly when the surface has been inflamed, as by blisters or sinapisms, and when it is subjected to pressure and friction, as from the long continuance of the body in one position. Blisters are most apt to be followed by this effect, when applied furthest from the

centre of circulation. The insensibility, more or less complete, which is so common in this disease, favors the production of eschars from pressure. The patient is not sensible of the mischief, and does not therefore change his position. The first effect is to produce a deep redness, which is followed by a separation of the cuticle, sloughing of the skin, and ultimately an ulcer, when the case is sufficiently protracted. The feeble capillary circulation, and diminished vitality of the surface, are the remote causes of the mischief.

One other symptom deserves particular notice. We allude to the retention of urine, which is not unfrequent in the advanced stage. In consequence of defective sensibility, urine accumulates in the bladder so as to produce considerable distension before the want of micturition is felt; and then the muscular coat of the bladder has been put so much upon the stretch as to have lost its power of contraction, and the accumulation goes on increasing.—Enormous distension is thus sometimes induced, endangering inflammation or rupture of the coats of the bladder. When a certain degree of sensibility remains, great uneasiness is produced, which is in some cases referred to its proper position by the patient, but in others only occasions restlessness and moaning. In complete insensibility, no consciousness of inconvenience is evinced. The practitioner is liable to be led into error by the fact, that a slight involuntary stillicidium of urine is apt to take place in these cases, which is, however, insufficient to prevent continued accumulation. In all cases of enteric fever, the physician should be constantly on his guard against this accident in the latter stages. Though concealed from the eye by the co-existence of tympanites, the distension of the bladder may be usually detected at once by the dulness which it yields on percussion over the pubes.

M. Martin Solon, has paid special attention to the state of the urine in this disease. He has found it to be scanty, higher colored, and denser than in health, equally acid if not more so, much more abundant in urea, and occasionally albuminous, especially in severe cases, in which this character of the secretion must be considered as an unfavorable sign. Dr. J. W. Begbie of Edinburgh, has found it frequently albuminous in the advanced stages, and has noticed that in the fatal cases this impregnation continues until death, while in those which recover, it sometimes disappears when convalescence is completed, and sometimes persists for an indefinite period afterwards. M. G. W. Edwards has found the urine in the early stages invariably destitute of albumen, but hea-

vier than in health in consequence of the excess of urates. He thinks that albumen appears only when the crisis is past.

Varieties and Complications.—Though the description above given is applicable to the great majority of cases, there are peculiarities in not a few which require notice.

In some instances, the disease presents no other symptoms than those of a moderate fever, with the characteristic phenomena of a slight diarrhœa or tendency towards it, some meteorism of the abdomen, and perhaps a few rose-colored spots. The tongue remains soft, moist, and whitish throughout; there is no vomiting, no considerable nervous disorder, no great prostration, in fine, none of those peculiar symptoms usually denominated typhous. The disease runs its course in two or three weeks, sometimes even in less time, and then subsides spontaneously, leaving no unpleasant effects. Such cases are often mistaken for miasmatic remittent, especially as they not unfrequently have a daily remission and exacerbation of the febrile symptoms.

Occasionally we meet with cases in which diarrhœa is the prominent symptom; so much so as to lead to the conviction, upon a superficial examination, that the disease consists essentially of a chronic mucous inflammation of the bowels. There are increased frequency of pulse, a slightly furred tongue, and perhaps some restlessness, mental depression or disquietude, or other slight nervous symptoms; but little or no headache or other sign of cerebral disorder, little heat of the skin, no great prostration, and no typhous phenomena. The disease may thus run on for several weeks, exciting little solicitude, except by its obstinacy.

There is another class of cases, more rapid and violent in their character, in which the prominent symptoms are those of gastric or hepatic disorder, or of both. Along with the characteristic symptoms of enteric fever, we have much nausea and vomiting, often of bilious matter, tenderness of the epigastrium, and not unfrequently yellowness of the conjunctiva or the skin. These cases may be readily mistaken for bilious fever. They are apt to run their course rapidly, and sometimes terminate fatally before the rose-colored eruption has appeared.

Sometimes the pectoral symptoms are most prominent. Instead of the ordinary dry or mucous cough and bronchial rales, with little or no oppression, we have a tenacious or bloody expectoration, shortness or difficulty of breathing, sometimes pain in the chest, and the physical signs of crepitation and dulness, indicating the supervention of pneumonia.

In other cases, the brain is especially involved. Delirium and stupor, one or both, and in various modifications, are the features which most attract attention. These may be connected with inflammation of the cerebral membranes, or strong sanguineous determination to the head; or they may be the consequence of deficient action in the brain, dependent either on a direct loss of power, or an altered state of the blood. When occurring in the earlier stages, without the signs of general prostration, they may be ascribed to the former cause; under contrary circumstances, though they may also sometimes depend upon positive excitement in the brain, it will, as a general rule, be safer to refer them to the latter. Now and then cases occur in which the cerebral symptoms are precisely those of meningitis, but in which after death no meningeal inflammation is detected, but much intestinal disease.—The probability is that, in such cases, the cerebral disorder is caused by the irritation of the enteric affection transmitted to the nervous centres in the brain.

There is still another set of cases, in which the typhus element seems to predominate. From the beginning, there is an obvious deficiency of power. The feeble, though perhaps frequent pulse, the obvious sensorial debility, the tendency to black sordes upon the tongue and teeth, the petechial and hemorrhagic disposition, the dark stools, the peculiar typhous ordour, and the speedy and great prostration of strength, are evidences of this condition of system.

Frequently it happens that the varieties above alluded to are more or less combined in the same case; and a still greater diversity may arise from the occurrence of inflammation in parts not particularly mentioned, as in the rheumatism and in the spinal marrow giving rise to palsy. Lastly, there are occasionally cases, called *latent* by Louis, in which the characteristic symptoms are entirely wanting, and nothing calls attention to their true nature, until, perhaps, perforation of the bowels takes place, or death from some other cause reveals the existence of the peculiar intestinal affection.

Dr. J. H. T. Beau has described a species of acute paralysis, characterized by intense subsultus tendinum or muscular trembling, with difficult articulation, fever, and low delirium soon terminating in coma, which he has noticed as occurring during convalescence from enteric fever. The affection always ends fatally in a period varying from three to six days. The most constant of the lesions found after death is softening of the cortical substance

of the brain, attended sometimes with cerebral congestion, and injection of the vessels of the pia-mater. The same affection sometimes occurs in the course of the fever, and has been noticed in the convalescence from other diseases, but never as an original affection. He proposes to call it *general acute palsy.*

Anatomical Characters.—There is scarcely a single organ of the body, in which signs of inflammation are not sometimes found after death from enteric fever; for it is one of the peculiarities of this affection, or possibly of the febrile movement, which in this affection is of unusual duration, to develope local disease of an inflammatory nature. But there are certain anatomical changes which are especially characteristic of enteric fever, and which are so seldom wanting that they may be considered as almost essential. Such is the affection of the elliptical patches of those peculiar minute bodies in the ileum, denominated the glands of Peyer.—This is quite as characteristic of the disease in question, as the peculiar pustular eruption is of smallpox. It has, in fact, come to be regarded almost as a necessary post-mortem test of the existence of the disease. The affection had been observed by various pathologists, as by Stark, Petit and Bretonneau; but it is to Louis that the credit is especially due of fixing its precise relation to the enteric fever of Europe, have been amply proved to be equally applicable to the disease, as it prevails in the United States.

The most characteristic symptoms of this disease are the frequently slow and insidious mode of attack, the diarrhœa at the beginning or soon afterwards, the dull or heavy expression of countenance, the dusky hue of the face, the tendency of epistaxis, the cough and bronchial rales, and, after the seventh or ninth day, the dryness of the tongue and general diminution of the secretions, the rose colored eruption, the sudamina, the tympanitic abdomen, the deafness, the stupor or delirium, and the various signs indicative of the typhous state. The enlargement of the spleen, either sensible to the touch or discoverable by percussion, may have some weight in the diagnosis. The duration of the disease, exceeding generally that of other fevers, is also an important diagnostic character. It must not, however, be understood that all these symptoms are necessarily present in every case. The diagnosis may be very certain, though many of them should be absent.

One of these diseases with which enteric fever is most frequently confounded is the remittent or bilious fever. The latter, however, may usually be distinguished by its more regular and decided remissions, by the bilious vomiting and yellowness of the

skin which frequently attended it, by its shorter duration and its tendency to end in intermittent, and by the absence or comparative rarity of the characteristic symptoms of enteric fever, such as diarrhœa epistaxis, dingy complexion, hebetude of expression, stupor, tympanitis, and rose-colored spots. Typhous symptoms are much less common in bilious than in enteric fever. Dissection confirms the diagnosis. While in bilious fever the stomach is more frequently inflamed, and the liver discolored than in the enteric; the spleen is less diseased, and there is a total absence of the affection of the glands of Peyer, and of the mesenteric glands, characteristic of the latter complaint. Sometimes, however, the diagnosis is very difficult, especially when the bilious fever assumes the protracted typhoid form. We believe that, occasionally, the two complaints are commingled, in consequence of the co-operation of their causes. Thus, cases having all the essential characters of enteric fever occasionally end in intermittent; and bilious fevers, or affections which cannot be distinguished from them, sometimes show the signs of enteric fever during their progress.

The diagnosis between the enteric and typhus is reserved until we come to the latter of these affections.

Inflammation of the membranes of the brain sometimes bears a considerable resemblance, in the general aspect of the case, to enteric fever. But a close attention to the diagnostic characters above enumerated will generally enable the practitioner to reach a just conclusion. The diarrhœa epistaxis, and heaviness without delirium in the first stage, and the tympanites, sudamina, and rose-colored eruption of the second stage, are perhaps the most important symptoms in this relation.

The different forms of acute tuberculosis, especially in children, are sometimes difficult to diagnosticate from enteric fever, which they often very closely resemble in their symptoms and course.—Whether the tuberculization affects the membranes of the brain, the lungs, or the peritoneum, there are often many points of resemblance; but, with attention directed to the subject, and a recollection of the more characteristic symptoms of enteric fever—the epistaxis, the dulness of countenance, the diarrhœa with the generally healthy looking stools, the tympanites, and especially the rose-colored spots, there can in general be no great uncertainty in the diagnosis after a due period of observation. Dr. Wm. Jenner deserves credit for calling attention to this subject.

Treatment.—As there is often diarrhœa at the commencement, or, if not diarrhœa, an unusual susceptibility to the influence

of cathartic medicine, it is not advisable, as in most other fevers, to begin the treatment with purging. Yet the bowels should be thoroughly evacuated by Leptendrin, in order to obviate the injury arising from the contact of irritating matter with their lining membrane. A very small dose of sulphate of magnesia or of castor oil will answer the purpose, if the Leptandrin is not at hand; and, when there is much existing irritation, the latter of these medicines should be preferred. Sometimes it may be advisable, when there is pain at the same time with diarrhœa, to administer castor oil with fifteen or twenty drops of tinct. Cayenne. Afterwards, throughout the complaint, the state of the bowels should be attended to. If the evacuations be spontaneous and free, as often happens, no opening medicine will be requisite. Should they, on the contrary, be scanty or wanting, means should be used to procure at least one full discharge daily. The gentlest laxatives, and those in small doses, will be sufficient. Three or four grains of Leptandrin with one of Podophylin will generally be sufficient to keep the bowels free. If this should not be sufficient, let enemas be relied upon to procure the necessary discharges. The magnesia should be preferred, when sourness of the breath indicates the presence of acid in the circulation. Rhubarb or one of its preparations is well adapted to the typhoid cases, in the later stages, especially the Neutralizing mixtures. When the stomach is irritable, or cathartic medicines worry the patient, the same object may be effected by enemata. These should be mild in the early stages; but, at an advanced period of the disease, when the tympanites is considerable, may be very advantageously combined with oil of turpentine. But we would again impress upon the young practitioner the necessity of avoiding irritating and drastic cathartics in this fever.

The bowels having been evacuated if necessary, the next indication is to obviate the febrile symptoms. When the pulse is full and strong, and sanguinous determination to the brain or other vital organ is obvious, let a thorough emetic of lobelia be administered: this will equalize the circulation and produce perspiration much better than any other course; it will also quiet the nervous system better than all the opium in the land; and cases occur in which it may be proper to repeat this emetic almost daily. It must be borne in mind that this disease generally runs a certain course, and that this is sometimes very protracted. It is important, therefore, to husband the strength of the patient, especially as the natural tendency of the complaint is often to debility. Bleed-

ing will not arrest it, and therefore should never be resorted to.—

Cold ablutions are very useful in abating the heat of the surface. The legs, arms, and temples, should frequently be sponged with cold water; and, when the skin is uniformly hot and dry, the application may be extended to the whole surface. In cases attended with much debility, diluted spirit may be substituted.—The patient should also be allowed cold drinks, and, if he wish it, a little ice in his mouth, when not greatly prostrate.

There are certain local affections that often require attention. Severe headache may be relieved by cooling applications to the head; for pains in the bowels let the stimulating liniment be used freely over the seat of the pain, and the bowels covered with a cataplasm of bitter herbs. If the diarrhœa is profuse, or if it becomes exhausting it should be checked by the Dysentery Cordial or by some astringent diarrhœa mixture.

In mild cases the above treatment well persevered in, will effect a cure. But should the symptoms not yield, Dr. Wood in his practice recommends the oil of turpentine as follows:

I cannot too strongly impress upon the profession my convictions of the importance of this medicine. It may be employed in all cases, in the advanced stages of this disease, when the tongue is dry. But there is a peculiar condition, and that a not uncommon and sometimes a dangerous condition, in which I have very often employed it, and hitherto have very seldom known it to fail. In the description of the symptoms, it was stated that, in the latter period of the disease, the tongue, instead of cleaning gradually from the edges and tip, often parts with its fur quickly and in large flakes, generally first from the middle or back part of the surface, which is left smooth and glossy, as if deprived of its papillæ. It was also stated that if, after this process, the tongue remains moist, a slow convalescence may be pretty confidently calculated on. But it not unfrequently happens that, during the progress of the cleaning process, or after its completion, the surface of the tongue becomes quite dry, and the process, if not finished, is suspended. At the same time, there is generally an increase of the tympanites, and an aggravation, or certainly no abatement, of the other symptoms. Two cases of this kind I had seen terminate fatally, one in my own practice, and a second in that of a medical friend. One of them was examined after death; and ulcers were found in the ileum near the ileocæcal valve. This case happened so early as the year 1823. Ascribing the aggravation of symptoms which attended the drying of the tongue, after cleaning, to

the occurrence of ulceration in the ileum, we inferred that the oil of turpentine, which had been recommended in ulceration of the intestines, might prove useful here, and determined to employ it in similar cases. We did so, and, as before stated, have seldom found it to fail, under the circumstances mentioned, though we have very frequently employed it, both in private and public practice. It acts in some measure as a stimulant, but chiefly, we believe, as an alterative to the ulcerated surfaces in the intestinal mucous membrane. It should be given in doses of from five to twenty drops every hour or two, and is best administered in emulsion with gum arabic, loaf sugar and water. Our usual dose is ten drops every two hours. In the course of twenty-four, or at most forty-eight hours, some amelioration of the symptoms may be observed. The tongue becomes gradually moister, and covers itself with a whitish fur; the tympantic distension ceases to augment, and after a time diminishes; the pulse becomes less frequent, and the skin less dry and harsh; and the patient enters slowly but regularly into convalescence, often without any other remedy. As they improve, the quantity of the oil should be diminished; but care should be taken not to omit it too hastily. Not unfrequently, especially in the lower classes, the practitioner is not called upon until the disease has assumed the aspect above referred to. He finds the tongue red, smooth, and dry, the abdomen tympanitic, and other symptoms which leave no doubt of the disease. We have known such cases to run on for a considerable time, without material change, under various treatment, and have seen them yield immediately to this remedy. We will repeat, that the oil of turpentine may be used, with great hope of benefit, in any case of enteric fever, in the advanced stage, with a dry tongue; but, in the cases above referred to, with confidence of success, so far as an experience of more than thirty years may be admitted as a ground of confidence. We have also seen it strikingly useful in the advanced stages of lingering cases in which, though the tongue may be whitish and moist, there seems to be some impediment to recovery, probably connected with an indisposition of the ulcerated surfaces to heal. Such cases, under the use of the oil, often enter immediately into convalescence.

We are indebted to Dr. O. Flemming, of Alabama, for the following treatment of this disease. His extensive experience is a sufficient guarantee of its value:

If the collapse or shrinking stage of the disease has not commenced upon the patient at the first visit, Lobelia emetics are

strongly indicated, as the commencing treatment. If, on the contrary, the collapse has already commenced, give emetics seldom, that is, use Lobelia more as a nauseant to produce diaphoresis, as frequent vomiting will prostrate the patient.

I have always, in the treatment of this disease, in the first place, used a compound, (that I shall call my new compound or new composition,) prepared in the following manner, to-wit:

Equal parts of Ginger, the best Jamaica.	
(Prickly Ash,)	Zanthoxylum Frax.
(Nerve Powder,)	Cyprepedium Pubs.

These three articles form my new compound, the base of my treatment in Typhoid Fever. With this compound, add sufficient of Lobelia seed, well pulverised, to operate as an emetic, when the emetic is indicated, and lobelia herb to produce nausea when you wish to produce diaphoresis in the collapsed stage of the disease; and with the same compound, add Leptandrin for an aperient.—(Be sure that you do not operate too much upon the bowels.) Use the enema with the above compound and Lobelia herb; and should there be pain in commencement of the large bowels, and for a poultice, use the Boneset, (Eupatorium) with slippery elm, which will soon give relief. In most cases the disease may be broken up in from five to seven days. It is also necessary that the physician be particular in observing the effects of this medicine. Perhaps at one time the lobelia may be too strong for the patient's stomach, that is, the nausea kept up too strong; *add more new compound.* At other times the patient will complain but little of nausea, then add more lobelia; and temper the dose to the patient's condition. Be regular in the doses, from two hours to two hours and a half between doses. Give the medicine in cold water, as it will be much more pleasant, or you may roll it into pills with syrup or honey.

The most of physicians need a plain, reliable course of treatment. First use Lobelia with the new compound as an emetic; Lobelia herb with the new compound as a nauseant; Lobelia herb, new compound with Leptandrin as an aperient, or by enema; Boneset, slippery elm as a poultice to the bowels—you have all that is necessary to treat a case of Typhoid Fever. Externally to the skin use water and soap to clean the skin of all sticky matter. After you have controlled the fever, add to the new compound Cayenne sufficient to stimulate your patient well while convalescing.

During the remissions of the fever, we may give the quinia

combined with the stimulents, and this is especially necessary when the patient begins to convalesce. Whenever there is restlessness, jactitation and subsultus, we must administer the Lobelia with an unsparing hand.

Prof. Wood makes the following judicious remarks in reference to diet of patients suffering with this form of fever.

Attention to the diet is all important in enteric fever. In the early stages, it should be very light, consisting chiefly of liquid substances, which may also answer the purposes of drink. Solution of gum arabic, barley water, rice water, toast and water, weak solutions of tapioca, sago or arrowroot, very weak gruels of oatmeal or Indian meal, molasses and water, vegetable jellies mixed with water, and other similar preparations may be successively, or interchangeably employed; and the patient may be allowed, if he desire it, to swallow the juice of sweet grapes and oranges, taking care to reject the sold portions of these fruits. Cold lemonade or orangeade, carbonic acid water, and pure iced water in moderation, may also be used as drinks. At a more advanced period, in the second week, for example, when the symptoms of debility begin to show themselves, it will be necessary to support the strength by a more nutritious diet, which, however, should not be irritating. Preparations of tapioca, sago, or arrowroot, of a nearly gelatinous consistence, thick gruels, or panada, may now be given, flavored with nutmegs or other spice and sugar, and not unfrequently with wine. It will often be desirable to give these in certain quantities, at certain intervals, so as to insure that enough is taken. For example, a wineglassful to be given every two or three hours, or less frequently, according to the apparent strength of the patient. A cup of tea may also be allowed, with dry toast or a water-cracker, morning and evening. Still further on in this stage of the disease, milk, in small quantities frequently repeated, will often be found to suit the case admirably well. A tablespoonful of it may be given every hour or two through the day; and, if the stomach be irritable, it may very properly be associated with an equal quantity of lime-water. It may be added also to the farinaceous preparations already referred to. In the last, or prostrate stage, it is proper that the diet should be not only nutritious, but also stimulating. Animal broths or jellies may now be given; and, in the lowest cases, it is necessary to resort to egg beat up with wine, milk punch, and the essence of beef or mutton.

Throughout the whole case, the greatest attention should be paid to cleanliness and ventilation; and, when the atmosphere cannot

be sufficiently purified by these means, as sometimes happens when many patients are crowded together, recourse may be had to the corrective influence of chlorine.

The period of convalescence often requires a close watchfulness on the part of the physician. The bowels should be kept daily open, if necessary, by the mildest laxatives or enemata; but active purgatives should be scrupulously avoided, as they endanger injury to the ulcerated surfaces, and sometimes induce relapses. Not unfrequently the patient is affected with profuse and exhausting sweats at night. These are ordinarily best encountered by the mineral acids and simple bitters. Convalescence appears to be sometimes very much retarded by debility of the alimentary canal, which disables the ulcerated surfaces from healing. A species of hectic excitement is sustained for a long time. The pulse remains frequent, something like a febrile paroxysm occurs every afternoon, and the patient sweats copiously at night. Under these circumstances, I have found nothing so effectual as sulphate of quinia. The diet in convalescence should be nutritive, but mild and easily digested, and the patient should be especially guarded against an excessive indulgence of his appetite. I have known death, after the apparent commencement of convalescence, to result from the free use of peaches. Premature and fatiguing exertion should be avoided; and the patient should be brought gradually back to his accustomed modes of life, without any strain upon his mental or physical powers.

For other items of treatment for this affection we refer the student to Typhoid Pneumonia.

J. R. Lassetter, of LaGrange, has had much experience in the treatment of this form of disease, he has given us the following:

Owing to its complications, its extensive derangment, and its changeableness, no specified and invariable plan of treatment can be instituted. I will, however, present you some fragments which I am pleased to say, have succeeded in all cases that have come under my management:

Lobelia Emetics frequently administered, are indicated in all stages of the disease. The *Cathartic Powder* and Lobelia Herb in broken doses as before described, given in the interval, especially when the liver and bowels are in a torpid state, or the discharges of a bilious character. I will here remark, that this Powder, used in moderate quantities, will prevent the colliquative diarrhœa, which sometimes supervenes in this fever. I am led to this conclusion from the fact that it has never occurred in a case of mine.

When the discharges are of a light watery character, and the patient is inclined to sink under them, give a powder of cloves or cinnamon 5 grains, gum myrrh (pulv.) 3 grains, and tanin 3 grains, stirred in a little water or tea, every three hours.

When there is tenderness in the bowels, a. a. parts of pulverized Myrrh and Cayenne, wet with spirits camphor, No. six, or spirits, is excellent. A liniment with a proportion of spirits turpentine is also good. The turpentine is not only healing, but is disinfectant, and will counteract the effluvia that emanates from the patient, and contaminates the air of the room, and saturates the bed clothing. Sponge the surface with warm water and soap. Diaphoretic teas with a portion of nervine in them should be drank instead of water.

This has been my treatment, which has afforded ample satisfaction. Whoever succeeds in curing Typhoid Fever has something to boast of, for it is always difficult to contend with.

The above doses are intended for adults.

N. B. The Turpentine liniment will sometimes cause painful micturition, when it must be discontinued.

TYPHUS GRAVIOR—TYPHUS FEVER—PUTRID FEVER ETC., ETC.

Description and Causes.—The origin of the terms *typhus*, is from τυφος stupor, and indicates the general character of the affections to which it has been applied. But as it has been rather vaguely used by authors, it will be proper to state precisely the meaning attached to it, in this work.

There is a peculiar febrile disease, distinct from all others, characterized by a peculiar group of symptoms, and produced probably by a peculiar cause, to which the name *typhus*, or *typhus fever*, is attached; the substantive term being used adjectively in the latter name, as we say ship fever, jail fever, etc. But a state of the system, identical or closely analogous with that which characterizes typhus fever, is frequently met with in other febrile diseases, as a mere incidental accompaniment. To this state of the system the epithet *typhus* or *typhoid* is applied, the latter being preferred to the former, when it is wished to imply resemblance only, and not sameness. Thus, we speak of a typhous or typhoid

condition of bilious fever, yellow fever, smallpox, measles, pneumonia, dysentery, etc.; or, with greater brevity, of *typhous pneumonia*, *typhous dysentery* etc.; by the latter phraseology, however, generally implying a more thorough incorporation of the typhous constituent with the principal affection than by the former. This distinction between the peculiar disease named typhus fever, and the analogous state of system met with in other diseases, indicative by the adjective epithets typhous and typhoid, it is important to bear constantly in mind, in order to avoid serious errors.

The existence of such a disease as typhus fever is universally admitted. But opinions are not equally united in relation to its identity or non-identity with the disease styled in this work typhoid fever. Many consider the two as constituting varieties of the same disease, differing only in the superaddition of a certain intestinal affection, in the case of enteric fever. A greater number probably believe them to be entirely distinct, though having in many instances certain very striking points of resemblance. Differences between the two diseases sufficiently fundamental, will be pointed out under the heading of *diagnosis*. It is sufficient here to say that, from the time of Huxham downwards, authors have observed such obvious and important differences in the symptoms and cause of fevers called typhous, that they have been compelled to give distinct descriptions of two varieties, designating the one as malignant typhus, typhus gravoir, etc., the other as *typhus mitior*, *nervous fever*, *etc.*; and practitioners who have witnessed both have been under the necessity of making a similar discrimination in their own minds.

The special causes of typhus fever are 1, the vitiated air resulting from the crowding of human beings in confined places, and 2, a peculiar contagion. The exhalations from the body and from the excretions probably undergo changes, resulting in the production of a poisonous aeriform matter, which being absorbed into the system, gives rise to the disease in question. It is not necessary that the individuals who serve as the source of the poison should be diseased, though it is thought that certain complaints favor its production, such as dysentery, gangrene, etc. All that is absolutely essential is, that there should be numbers of persons crowded within confined and ill-ventilated places, in which the filth from the excretions is also allowed to accumulate. Hence the disease has often made its appearance in camps, prisons, ships, hospitals, garrisoned cities, etc.; and hence, too, it is usually most prevalent

among the lowest and most vicious people, inhabiting the cellars, lanes, and closely built parts of cities.

That when once generated, the disease is capable of propagating itself by contagion is almost universally admitted. The facts in support of this opinion are two numerous and strong to be refuted. Thus, nurses and other attendants upon the sick are often seized with the complaint, without any other known case. Armies are known frequently to have spread it in their march in places before healthy. Individuals attacked by it have been removed into uninfected neighborhoods, and have there become centres of infection. It appears even to be capable of being conveyed in clothing, to which the poison has been said to adhere for the space of three months. Yet the contagion is not powerful. When unsupported by peculiarly favorable influences, the disease soon ceases to spread in healthy places. It is thought that the poison can act but a few feet from the point of emanation; and attendants upon the sick often escape, if great care is taken to ventilate the apartment, and observe perfect cleanliness. Of these exposed to it, moreover, a much larger proportion escape than in most other contagious diseases. It resembles these affections in seldom occurring twice in the same individual.

Besides the causes above mentioned, epidemic influence undoubtedly sometimes produces the disease. It was thought that the epidemics which caused such terrible ravages throughout a large portion of the United States, between the years 1807 and 1820, were of typhus fever, and it is well known frequently to occur in the same way in Europe, especially, in Great Britain and Ireland. The other causes, too, are made much more effective by the co-operation of an epidemic state of the atmosphere. It is only in this way that we can account for the production of the disease, on certain occasions, under circumstances apparently quite the same as those under which it is escaped upon others.

It may be a question whether all these causes are or are not identical. Considering the identical nature of the result, it would seem probable that the cause is the same; that is, that the aeriform poison, generated in crowded places, differs in nothing from that evolved by the bodies of the sick, and that produced, in some inexplicable manner, during epidemics. If we suppose the poison to be a form of invisible animal or vegetable life, we approach one step nearer to a solution of the difficulty.

Certain depressing agencies are capable of producing effects upon the system somewhat analogous to typhus. Unwholesome

or insufficient food, long exposure to cold, the exhaustion of fatigue and excesses, continued anxiety, grief, fear, or other depressing emotions, nostalgia, and certain poisons, a sulpheretted hydrogen and ergot in large quantities, are among the causes of this kind. There can be no doubt that these favor the action of the special cause. Hence, typhus fever is apt to follow in the march of famine. Hence, it is seldom or never completely eradicated from Ireland, where misery always serves to give activity to the germs which might otherwise lie hidden. But there is reason to doubt, whether mere depressing causes of a common nature can alone generate genuine typhus fever.

The disease is confined to no particular time of life. Age appears to exercise little or other influence than as it may affect the healthy vigor of the individual. The complaint is less common in infancy than in middle or advanced life. The two sexes are equally liable to it under the same exposure. Negroes would seem to be more readily affected than whites. It is not certain that season is of any account. The disease has prevailed at all times of the year. If there is any difference in this respect, it is in favor of the winter. The intense cold of that season, acting upon a poorly clad and badly housed population, must predispose to it; and the necessity of living in confined apartments must favor the action of the cause. In this country, the disease has certainly in general shown a preference for the winter. It is much more common in the temperate and cold than in the hot latitudes, perhaps because dwellings are so much more open to the air in the latter.

The length of time which may intervene between the exposure and attack is uncertain. Cases are on record in which the disease appears to have been developed immediately; while in others several months are supposed to have elapsed. But such cases are always involved in some doubt. The period of incubation is generally from one to two weeks.

Of the nature of typhus fever we know little. It is certainly one of those diseases which are most clearly independent of any local lesions. The probability is, that a poison is absorbed, which at once depresses the powers of the nervous system, and vitiates the blood. All the local congestions, and the low imperfect inflammations which attend the disease, are obviously secondary.

Diagnosis.—More frequently perhaps than in most other fevers, the patient is affected preliminarily more or less with certain morbid sensations, such as pain, soreness, or a feeling as of weariness the back and limbs, headache, fatigue after slight exertion,

general uneasiness, constriction of the epigastrium, deficient appetite or even nausea, mental depression or irritation, restlessness, and want of sleep. Sometimes the disease begins and advances so gradually, that it is difficult to fix the precise time of attack.—But, in the great majority of cases, after a longer or shorter duration of some of the above symptoms, and occasionally without them, the patient is seized with chilliness and feelings of great debility, which compel him to take to his bed. There are usually at the same time sharp pains in the back, loins, head, and lower extremities, or in some one or more of these parts, which are sometimes exceedingly severe and even excruciating. Occasionally, also there are nausea and vomiting, though these are not common. This initial or cold stage varies greatly in degree and duration. Sometimes it is so slight as to be scarcely perceptible ; sometimes exceedingly severe and protracted, with a cool and pale skin, shrunken and anxious features, a frequent irregular, and very feeble pulse, great oppression, and universal prostration, in which death may occur with but feeble and ineffectual attempts at reaction, or without any reaction whatever. Cases of this kind, however, are very rare. In the vast majority of instances, febrile reaction occurs sooner or later, often in a very short time, sometimes not for twelve hours or more; and frequently there is an alternation of chilliness and heat several times, before the latter becomes permanent.

The febrile condition, when established, is marked by the usual symptoms of a hot, dry skin, accelerated pulse, hurried breathing, furred tongue, thirst, anorexia, and headache. The pulse at this period is often full, and possessed of a certain degree of strength ; but it is generally compressible, and less firm and tense than in ordinary fevers, with much less appearance of excitement. The tongue is usually moist, and whitish or yellowish-white. Occasionally there is nausea or vomiting; but these are not ordinary symptoms, and are often entirely absent throughout the complaint. In general the bowels are costive, and stools are not procured without medicine. Even at this early period, the appearance of the face is often peculiar, being of a darkish-red or dusky hue, with injection of the eyes, and sometimes congestion of the mucous membrane of the nostrils and fauces. The mind also exhibits signs of sluggishness, and the thoughts often have some degree of confusion. The headache, which is felt most commonly over the brows, is often exceedingly severe, feeling, to use an expression common with the patients, as though the head would burst.

These symptoms continue for several days, gradually increasing until the disease attains its height. The surface is now universally hot, with little disposition to perspiration, and the heat is of that peculiar kind, usually called *calor mordicans* or *mordax*, which produces in the hand a sense of pungency as well as burning. Examined by the thermometer, the temperature of the surface is usually from 100 to 106 degrees F., and, in some rare cases, as high even as 109 degrees. The pulse is remarkably frequent, and generally feeble, beating from 100 to 120 or 130, and sometimes as high as 140, 150, or even 160 in a minute, so that it can scarcely be counted. The respiration also is very frequent; and, when examined by the stethoscope, is found feeble and imperfect in the back and lower part of the chest, which is also dull on percussion. A paroxysmal tendency is often observed in the febrile symptoms; an exacerbation generally taking place towards night, and a remission in the morning.

A characteristic eruption now generally makes its appearance, which gives the disease a claim to be ranked among the exanthemata, and has served as the origin of the names of spotted and petechial fever sometimes applied to it. This consists of numerous small reddish spots, varying in size from that of mere specks to an eighth, a quarter, or even half an inch in diameter, though generally very minute. They are confined to no particular portion of the surface, occurring upon the neck, trunk and extremities, and sometimes covering the whole body, giving it occasionally an appearance not unlike that of measles. The eruption is in general not elevated or scarcely elevated above the surface, and is variously colored, red, purplish, violet, or almost black; being usually brighter colored in the early stages, and in mild cases, and darker in the declining stage, and in malignant cases. Sometimes the spots disappear under the pressure of the finger, but in general slowly and imperfectly; and, when of a dark-purple or livid hue, are usually not affected by pressure at all, being in fact true petechiæ. Though usually very numerous, they are sometimes few, and cases now and then occur in which they are wholly wanting. They appear at different periods, from the third to the thirteenth day, but usually from the fifth to the eighth; and generally last eleven or twelve days. Sometimes they fade for a time, and again appear in the progress of the case. They are occasionally accompanied with sudamina, which sometimes also appear in great numbers over the body, without the red eruption.

The tongue in this stage usually assumes a brownish color, and becomes more or less dry, especially in the middle; while, in some cases, a dark sordes begins to collect upon the teeth, gums, and lips. Sometimes the tongue is clean, smooth, and glossy, and sometimes, in the progress of the disease, assumes an appearance not unlike that of raw beef. There is in general a total want of appetite, but less disgust for food than in most other fevers. The discharges from the bowels, procured by medicine, are often dark-colored and offensive. Sometimes diarrhœa comes on; and this has been especially the case with the disease as it has appeared among the emigrants from Europe. The abdomen is sometimes quite flat, sometimes moderately swollen and tympanitic. The urine is usually scanty. The color of the face deepens, sometimes into a dark-red, purplish, or livid hue, which completely overspreads it; and the eyes have a turbid appearance. Occasionally there is bleeding at the nose. A peculiar and characteristic odor exhales from the body, which has been variously described, but which can be appreciated only by those who have once perceived it.

According to the observations of Mr. G. W. Edwards, the urine is generally pale, of a rather low specific gravity, and in the early period of the disease uniformly contains albumen.

The nervous symptoms are now prominent. Though the headache and general pains may be less severe, there is often a universal tenderness of the skin, which causes the patient to shrink or complain when pressure is made upon any part of the body.—Dizziness, confused vision, buzzing or ringing in the ears, and partial deafness are not uncommon symptoms.

The characteristic stupor of the disease becomes more and more developed. Sometimes it deepens into profound coma; but this is comparatively rare. In general, the patient can be roused with little difficulty, and will answer questions, though slowly, often imperfectly, and with apparent reluctance. He pays little attention to objects around him; and his countenance frequently has the apathetic, expressionless character of drunkenness, though sometimes wild and anxious. When told to protrude his tongue, he often does so partially and with apparent difficulty, and when it is protruded forgets to draw it in again. Delirium frequently replaces, or is mingled with the stupor. Sometimes it is violent, but much more frequently, low and muttering. Notwithstanding the heaviness of the patient, he gets little refreshing sleep, and often appears as if in troubled dream. Now and then great rest-

lessness and jactitation occur, with twitchings in various parts of the body.

Symptoms of debility are almost always mingled with those of perverted function. When consciousness remains, one of the most distressing sensations is that of utter prostration and powerlessness. The patient often feels as if he were sinking downward into the earth, with nothing underneath to support him, and no power of his own to check his descent. This has been described to me, after recovery, as a most horrible feeling, worse even than violent pain. A disposition to faint upon the slightest exertion is not uncommon, and fatal syncope sometimes occurs upon an attempt upon the part of the patient to rise and walk. Even without any cause of this kind, sinking spells sometimes suddenly come on, in which life is in the greatest danger. Occasionally these follow immediately after long and profound sleep, which exhausts instead of refreshing the patient. Among the attendants upon this excessive debility is sometimes a sense of intense oppression at the chest, amounting almost to suffocation. The patient feels as if deprived of air, and labors painfully for breath, expanding the chest, and raising the shoulders as in an attack of violent pulmonary congestion.

Should no favorable change take place at this period, the disease passes into the last stage, or that of prostration. The patient lies upon his back in bed, with his eyes half closed and his mouth open, slipping downward from inability to maintain his position, and almost insensible to impressions from without. Along with stupor or low delirium, there are often subsultus tendinum, picking at the bed clothes or at imaginary objects in the air, sometimes spasmodic muscular movements amounting almost to convulsions. Occasionally the patient is troubled with hiccough. The pupil is sometimes dilated, and sometimes extremely contracted. The tongue is often quite dry, the mouth loaded with brown or blackish sordes, and breath offensive. Deglutition is often difficult from deficiency of muscular power. Occasionally involuntary discharges take place from the bowels or bladder, and sometimes the urine is suppressed. The surface has in great measure lost its sensibility, so that the strongest irritants make little impression.

Even in this state, however, the case is not desperate, and suitable remedies have often proved effective. But, should it terminate unfavorably, death usually approaches gradually, and without violence. The respiration becomes slower and slower, the

pulse weaker and weaker, until at length the patient ceases to breathe, and the heart to beat. In some rare instances, death is preceded by convulsions. When it takes place at an earlier period of the disease, it is more frequently violent, though even then it generally occurs through syncope, or in the midst of coma.

When the disease takes a favorable turn before the period of collapse, the event is generally indicated by a diminished frequency of pulse, a relaxed state of the skin, a return of moisture to the tongue with a disposition in its surface to clean, a gradual fading of the eruption, a subsidence of the nervous symptoms generally, and a return of consciousness. Not unfrequently convalescence is ushered in by some incident which may be considered as forming a crisis. Thus, a copious perspiration, or an unusual discharge of urine is followed by a marked amelioration of the symptoms; or the patient falls into a gentle and quiet sleep, and, upon waking is found to have recovered his consciousness, and to be in all respects improved. When recovery takes place from the state of collapse, it is usually by a gradual and almost imperceptible amendment, under the supporting influence of remedies. The force of the disease has been exhausted, and it is the extreme debility alone which is to be counteracted.

Convalescence is generally slow, as time is required not only for the subsidence of the morbid actions, but for the repair of the exhausted powers of the system. The hair is apt to fall, and the cuticle not unfrequently desquamates. The brain and nervous system generally are often long in regaining their previous energy; the intellect, and especially the memory, remaining imperfect for weeks or even months. In general, however, no ultimate inconvenience is experienced, and the restoration to health is imperfect. Relapses are said sometimes to take place, but they are very rare. In the cases, however, connected with diarrhœa, this affection is apt to recur after convalescence, in consequence of premature or excessive indulgence of the appetite. Recovery is also sometimes protracted by the occurrence of external abscesses, especially in the region of the parotids.

The *duration* of the disease is variable. When it terminates favorably, it generally runs a course of three weeks or more, occupying one week in the advance, another in the formed state, and a third in the decline. Sometimes, however, when very mild, it terminates as early as from the seventh to the eleventh day, and in other cases runs on for four weeks. Fatal cases may end at any period. Death sometimes occurs, without reaction, in the

first twenty-four hours, and is not unfrequently so early as the fifth or sixth day. But more commonly it does not take place until some time in the second week, and is perhaps most frequent from the ninth to the twelfth day. It may also occur at a much later period.

Varieties.—These are such as arise from differences in degree, and from complications. Sometimes the disease is very mild, exhibiting only the ordinary symptoms of moderate fever, with some dullness or stupor, duskiness of complexion, and characteristic eruption, and terminating favorably without treatment. In other cases, it is exceedingly violent, the system sinking under the force of the first blow, and either never reacting, or but imperfectly. Such cases are now frequently called congestive. The danger probably depends not on sanguineous congestion, but on the prostrating influence of the poison upon the nervous and circulatory systems. Between these extremes, there is every conceivable grade of violence.

In some instances, the disease is characterized by an early and peculiar tendency to dissolution of the blood. This is indicated by the passive hemorrhage attending them, the abundance and purple or livid color of the petechiæ, the fetidness of the breath, the disposition to gangrenous eschars, and the extreme prostration of the pulse.

Another peculiarity is the absence, in certain cases, of all excitement of the pulse, and this without reference to the violence of the disease. Not only is the pulse unexcited, but it is even less frequent than in health, being sometimes not more than fifty in the minute.

The disease is very frequently associated with inflammation of some one or more of the organs, which considerably modifies its symptoms and result. The most common complication is probably with pneumonia, to which the mechanical congestion of the blood in the posterior portion of the lungs may give a peculiar tendency. For an account of the diagnostic symptoms of this affection the reader is referred to pneumonia. It may be inferred to exist when the patient coughs, and expectorates a rusty or bloody viscid matter; and the diagnosis would be confirmed by the absence of the respiratory murmur, the existence of a crepitant or subcrepitant rale, and dulness on percussion in the part affected. There is seldom much pain in the chest. This complication is most apt to exist in cold weather. In Summer the disease is more frequently associated with gastric, intestinal,

or hepatic disorder. At that season, diarrhœa or dysentery sometimes occurs, in consequence of inflammation of the ileum and colon; and vomiting, epigastric tenderness, yellowness of the skin, etc., from gastritis and derangement of the liver. Inflammation of the fauces is also not unfrequent, and the disease is occasionally complicated with erysipelas.

Other varieties of typhus fever are those which arise from its connexion with other fevers, dependent upon a simultaneous action of their cause with its own. Thus, it may be, and probably not unfrequently is, associated with enteric or typhoid, and remittent or bilious fever.

The most characteristic symptoms of typhus are, along with fever, prostration of strength; a dark-red or dusky hue of the countenance, with suffusion of the eyes; stupor; dark sordes about the tongue, teeth, etc., constipation of the bowels in the earliest stage; the peculiar odor; the peculiar eruption; and the collapse of the last stage.

The disease with which it is most frequently confounded, and from which it is most important to distinguish it, is enteric or typhoid fever. The profession is much indebted to Dr. Gerhard, of Philadelphia, for the means of an accurate diagnosis. It was in the results obtained by the careful post-mortem examinations made in the Philadelphia Hospital by that distinguished pathologist, in conjunction with Dr. Pennock, and their no less careful investigation of the symptoms during life, that we first obtained positive proof of an essential distinction between the two diseases which Louis himself had previously been disposed to consider identical. Numerous and very careful observations subsequently made by Dr. W. Jenner, in the London Fever Hospital, fully coincide in their results with those of our own countrymen. The following are the most important points of difference.

Typhus fever less frequently commences insensibly than the enteric, and is, upon the average, of considerably shorter duration. Instead of the diarrhœa, or extraordinary susceptibility to the action of purgatives, which almost uniformly attends the latter disease, it is frequently accompanied with constipation; and, when fecal discharges are obtained, they are usually darker and more offensive. But hemorrhage from the bowels, which is not unfrequent in the advanced stages of enteric fever, seldom occurs in typhus. In the latter complaint, epistaxis at the commencement is less frequent; there is more stupor and a darker color of the face, more turbidness of the conjunctiva, and much greater debility.—

The eruption in typhus also differs from that of enteric fever.—It generally commences earlier; it is not elevated as the other; is less regularly round or oval; is of a darker, more livid hue; does not so readily disappear under pressure, and is often unaffected by it; is much more abundant; does not appear in successive crops; and, instead of being confined chiefly to the abdomen and chest, is found equally upon the extremities, probably still more on the back, and is often diffused over almost the whole body. There is sometimes, however, in typhus, an eruption of light red spots, easily removed by pressure, and closely resembling those of enteric fever; but they are mingled with the other kind over all parts of the surface, and not limited to the anterior parts of the trunk. In typhus fever the abdomen is often flat, and perfectly free from tympanites, which almost never the case in the enteric. The signs of consolidation of the posterior part of the lungs are much more frequently present in the former, and the dry sibilant rales of bronchial inflammation in the latter. Enteric fever is of considerably longer duration than typhus. Dr. Jenner found the average duration of fatal cases of the former twenty-two days, of the latter fourteen. The urine, which, according to Mr. G. W. Edwards, is uniformly albuminous in the early stages of typhus, is so in the enteric only towards the close.

The anatomical characters of the two diseases are very different. The peculiar disease of the glands of Peyer, and of the mesenteric glands, so constantly present in typhoid fever, is never found in typhus, or so seldom as to lead to the suspicion of some intermixture of diseases when it does occur. The spleen, too, is much less frequently enlarged and softened in the latter. Dr. Jenner states that the spots which appear in typhus during life remain after death, while no traces of those of enteric fever are visible.

There are points of difference also in the persons attacked, and the circumstances under which the diseases originate. Thus, typhoid fever almost never attacks the old, who are very frequent victims of typhus. The former disease is epidemic in various countries, arises here and there (sporadically) without any obvious cause, and, if ever contagious, is very feebly and very rarely so; while typhus seldom occurs in isolated cases, is often long absent from countries where it occasionally prevails, is always contagious, and often epidemic.

Nevertheless, there are cases which cannot be clearly distinguished; and, as before suggested, it is highly probable that the two diseases now and then exist conjointly.

The other complaints with which typhus fever is most apt to be confounded are idiopathic fevers and the plegmasiæ, when they take upon them a typhous character. But in these, the distinguishing traits of the several affections usually first make their appearance, and the typhoid symptoms come on in the course of the disease. The diagnosis is much aided, in all such cases, by our knowledge of the absence or presence of typhus, as a prevalent affection. If it do not prevail, the presumption is that the case in question is one only of simulated typhus.

Treatment.—In almost every stage of this disease will the Lobelia Emetic be indicated, especially when we wish to rouse the system out of its torpor and direct action to the surface. The Third Preparation is the best form to give this remedy. We must also depend much on external stimulants, such as the Stimulating Liniment, heat by means of bricks, bottles of hot water, etc., to the surface.

We must also use cold water sponging when the skin is hot and dry, and warm water to the surface when the fever is off and when the patient is very weak.

Without doubt, the most important treatment in the early period of the disease, with a view of moderating its violence or arresting its progress, is regular courses of medicine. If this plan does not subdue it entirely in the forming stages, it greatly modifies its severity in its subsequent career. Comparative estimates of this medication, but strengthens the conclusion of its safety and propriety. Lobelia emetics should be given every ten or twelve hours during its inception. A tendency to visceral inflammation, which is frequently a prominent feature of typhus, is greatly diminished by the adoption of this rule as the arterial action is lessened, and the pressure upon the cutaneous exhalents taken off. A movement of the bowels should also be procured daily by the aid of the syringe, or some laxative medicine—this should not be forgotten. Dark colored, offensive matter, should not be suffered to accumulate, as it most certainly will, and to the detriment of the patient, if this admonition is unheeded. Although spontaneous diarrhœa is considered an aggravated indication in this disease, and particularly in its advanced stages, yet it should not be suddenly arrested, and the bowels suffered to remain quiet for several days afterwards. Diaphoretics should be employed as auxiliaries to the more efficient treatment already pointed out. Half a tea-spoonfull of composition and five or seven grains of the seeds of lobelia unpulverized, may be given, com-

bined, every two hours, in a little cold water. If too much nausea and vomiting should be excited by this, the portion may be lessened, or given at greater intervals. During the exacerbations of the fever, if the surface is very dry and hot, notwithstanding the sudorific treatment, moderately cold ablutions may be advantageous; or if the heat is unequally distributed, partial effusions to the head, hands, or feet, may have a favorable effect; although when there is much pain and tenderness of the abdomen, and we have every reason to apprehend the existence of inflammation of the bowels, some objections may be formed against the too free use of cold water applied externally. Under such circumstances, warm water, or warm salæratus water should be preferable.

Another article possesses great merit as a sudorific, not only in this, but we would say, in all forms of fever, as it produces a powerful action upon the vascular, capillary, system, and thereby promotes perspiration without exciting or accelerating arterial motion. It is much to be regretted that it is not more generally known and adopted by the Botanic fraternity—it is crawley. This article combined with white root, and lobelia, in the proportion of half a tea-spoonful each, of the two former, to five grains, or as much as would lay on the point of a pen-knife, of the seeds of the latter, forms almost an unparalleled febrifuge. It should be given consecutively every two hours.

If the patient complains of a sense of chilliness of the extremities during the intermediate stages or collapse, hot bricks or bottles of hot water should be applied to them, and an attempt made to restore the lost balance of warmth to the system.

If at any time the brain becomes oppressed, and delirium supervene, or a kind of torpidity, or stupor of the intellectual functions, and the pulse slow and feeble as a co-existing aggravation, the eye fixed and red, and great prostration of the general system; recourse must be had to stimulants. No. 6, repeated to suit the age and condition of the patient, will be a very proper means of affording advantage. But should there be sensorial disturbance accompanied by an increased pulse and other febrile excitements, the employment of stimulation is contra indicated.

In whatever grade of typhus, whether simple or inflammatory, there always exists a tendency to cerebral derangement and prostration. The pulse may at first be full and active, yet the influence of the remote cause from the beginning is to debilitate the vital functions. This peculiarity in the general character of the complaint, is not to be incautiously forgotten, and the proper stim-

ulants, at the proper time and place, in its progression, neglected. The tide of circulation therefore, must be carefully watched; and if any tendency towards congestion is manifest, the most prompt and judicious treatment must be applied. As internal congestions appear to be the consequence more frequently of the depletive practice, this change in the essential character of the malady is much less liable to occur under the foregoing treatment, than in the hands of the regulars. Congestion is doubtless dependent on the loss of energy in the vital powers, and especially of the extreme vessels upon the surface; therefore, whenever it makes its appearance, it would seem the most prudent and efficient course, and the best calculated to obviate the difficulty, to recall, if possible, the blood back to the surface.

The vapor bath, if it can be introduced into the bed, fomentations, frictions with a rough cloth, saturated in a tincture or infusion of cayenne pepper; hot bricks, or bottles of hot water applied to the feet, legs and sides; flannels wrung out in No. 6, and applied over the affected region, are the means which appear to us best calculated to accomplish the desired purpose. It must be recollected that, typhus is a disease of debility; that the powers of life are weakened from its inception, and that, *that* mode of treatment, consequently, is preferable which best answers the purpose in view, with the least expenditure of the resources of the system. It will scarcely be necessary to offer a remark with regard to diet in typhus, as we lay down general rules applicable, with but few exceptions, to all forms of disease. The patient may be allowed such mild, unirritating nourishment, as instinctive nature in her movements of oppression and debility would seem to select.

The sulphate of Quinia in doses of from 3 to 10 grains every two or three hours, has been advised in almost any stage unless the patient should be greatly prostrated.

There are few diseases in which more can be effected in the way of prevention than this. Thorough ventilation; perfect cleanliness in clothing, person, and apartments; a wholesome and nutritious diet; and sufficient protection against cold, will go far towards securing impunity to individuals necessarily exposed in some degree to the cause of the disease. Persons not called upon by duty to attend the sick should avoid their presence. They who are compelled to enter within the sphere of infection should not do so on an empty stomach; they should avoid inhaling the breath of the patient, or the air in the very near vicinity of his surface; they should not swallow their saliva; and, on leaving the apart-

ment, should wash their hands and face, and change their outer clothing.

The apartment of the sick should be well aired; everything offensive should be removed without delay; the bed and body-linen of the patient should be frequently changed; and care should be taken that as few persons as possible should remain in the room. In hospitals, prisons, etc., it is of great importance to distribute the patients over as great a space as possible.

Something may also be done by chemical means to change the character of the contaminated air. For this purpose, chlorine is the most effectual agent. A thorough fumigation with the gas should be employed when it is possible to obtain the apartment free from tenants; and, even while it is occupied by the patients, solutions of chloride of lime or soda may be exposed in it, the wood-work of the room and the bedstead may be washed with them, and they may even be added to the water used in the sponging of the patient.

Says Hamilton, "My experience in the treatment of typhus enables me to draw the following conclusions:

1st. Purgative medicines are given with safety in typhus, to evacuate the contents of the bowels.

2d. Under this limitation they may and ought to be exhibited at any period, from the commencement to the termination of the fever.

3d. The early exhibition of purgatives relieves the first symptoms, prevents the accession of more formidable ones, and thus cuts short the disease.

4th. In the advanced period of typhus gravior, symptoms that indicated the greatest danger were relieved by the evacuation of the bowels, and the patients in this instance recovered.

5th. Reconvalescence from typhus is greatly promoted and confirmed by a preservation of a regular state of the body. The same means secure against the danger of a relapse."

Among all the class of medicines prescribed for this disease, none stand higher than sudorifics, or medicines which produce perspiration. They are calculated to relieve the stupor and pain, they expel the morbific matter from the system, allay heat, and procure rest. The diaphoretic powders may be given as directed under the head of bilious remittent; these may be given, particularly in the first stage of the disease, in doses of a tea-spoonful in a small quantity of catnip tea, sufficient to produce a moderate degree of perspiration. Too much sweating must not be promo-

ted or encouraged, as debility is apt to follow. A moisture of the skin must be produced, at least, throughout the whole course of the disease, until a crisis takes place; and to effect this, three grains of lobelia, in any form, may be given three or four times a day, with an infusion of balm and catnip, or tea of the amaranthus or crawley root.

After the disease has become fairly established, and assumes an obstinate character, I have known every prescription of a heating or stimulating nature to aggravate the complaint. In this case it becomes necessary to reverse the treatment. Refrigerant and cooling remedies must be used. The anti-bilious physic may be given alternately in moderate doses. Gentle purgatives may be given, as a general rule, every other day. Frequent and excessive purging is injurious.

Cold water may be drank from time to time, if the patient complains of great thirst; also, lemonade, toast water, cream of tartar, whey, and soda powders. Likewise, beer made of various roots may be freely drank—such as spice-wood, sassafras, burdock, and black alder. Let them all be boiled down strong, sweetened with honey or molasses, and, when blood warm, a sufficient quantity of yeast added. This will prove a grateful and cooling beverage, and it may be drank freely.

If the patient is unable to sleep, complains of pain or distress, a portion of the diaphoretic powders may be given at bed-time in any suitable vehicle. This produces sleep, moisture of the skin without causing any excitement, and is a most invaluable medicine in typhus. These powders may be repeated daily. Also, Bankston's anodyne.

Among the various means made use of to arrest the progress of this disease, few are more valuable than the cold affusion.—Such confidence had Dr. Currie, of Liverpool, in this application in fevers, "that," he says, "for the cure of our most common febrile diseases it is no longer necessary to ransack the laboratory of the chemist, nor to traverse the mountains of Peru; that the cold affusion, used in the first three days of fever, very generally stops the disease. The same happy effects sometimes follow its use on the fourth, or even fifth day, but seldom later. Even in the subsequent stages, where the heat continues preternaturally great, and the skin dry, it is of great and manifest advantage, almost immediately relieving the most distressing symptoms, particularly restlessness and delirium, and conducting the disease to a *safe and speedier issue.*"

If the heat is not much above the natural temperature, as is sometimes the case in typhus, tepid, or moderately warm applications may be applied to the body, the whole surface should be bathed with it three or four times a day, or as often as the fever increases; this answers all the purposes in general of dashing buckets of water upon the patient. Should the heat be below the natural standard, let the parts occasionally be bathed with cayenne pepper and spirits. It is of the utmost importance to bathe the feet in warm rain water or ley once a day. Great attention must be paid to cleanliness; the patient's hands, face, and breast should often be washed with warm water, his hair should be combed, and his bed and body linen frequently shifted, his mouth washed and gargled; lemonade, tea, or toast and water, should be given very frequently; all excrementitious matters should be immediately removed, and the apartment should be well ventilated.

We have hitherto been speaking of the first stage of typhus before collapse, or great prostration, or sinking takes place. It is well known that *debility* is a characteristic symptom of this fever, and hence it is necessary to use the utmost precaution to support the strength of the system. To effect which, we must first give tonics or stimulants. Even though the pulse be somewhat irregular, weak, or quick, it will not contra-indicate or deter us from the use of corroborating or strengthening medicines, especially where prostration of strength is very great, and the person sinking. If the skin be dry, and there is great debility, the best Madeira wine may be used, diluted with twice its quantity of water, sweetened, and given warm. This acts not only as a tonic, but likewise as a diaphoretic, promoting perspiration. A wine-glassful may be occasionally taken through the day.

FEBRIS CONGESTIVA—CONGESTIVE—PERNICIOUS REMITTENT.

Description and Causes.—This form of fever has been accurately described but a few years, and hence it is mentioned in but a small number of books on disease. Professor Wood has described it under the name of Pernicious fever, as this is the term used by the European writers. It is also mentioned in some works as *malignant* fever. We propose, therefore, to restrict this term to an affection in which there is great and sudden prostration or de-

privation of the nervous power, or to use a customary phrase in which the inervation is extremely, and most dangerously defective or deranged.

It may be asked, why make a distinct affection of what is nothing more than a modification of an ordinary disease? The answer simply is, that its extreme danger, and yet often easy curability when early recognized, render it desirable that the practitioner should have a vivid impression of its character and importance, which may be best given by treating of it distinctly; while the danger of false pathological views may be readily guarded against by due explanation.

The modification of miasmatic fever may be intermittent, remittent, or continued. But it is only when of two or three days' duration, that it can be said to be of the last mentioned form; for, if the patient survive this period, and the disease persist, it will almost certainly become paroxysmal. Most frequently, it is either intermittent, or exhibits a close approximation to that form; and happily, though often quotidian, its more common type is tertian.

The essential cause of this affection is undoubtedly the same as that of the ordinary forms of miasmatic fever. What it is that gives rise to its peculiar characters is unknown. We may say, in general terms, that it is probably a more intense action of the miasmatic poison, or an unusual susceptibility to its influence. Dr. Parry tells us that in Indiana, while ordinary bilious fever occupies the table lands, the pernicious form has been observed to prevail especially in the low grounds skirting the rivers. According to Dr. Lavender, of Selma, Ala., intermittents and remittents are common in certain seasons when there is little or no pernicious fever. The latter is rare in the miasmatic districts of the middle and eastern section of the Union. Latitude, moreover, appears to have some influence upon the character of the disease; for, while in the counties north of the Ohio it generally assumes the intermittent form, in the State of Mississippi, according to Dr. Wharton, this disposition is much less obvious. The weakness of old age, or previous disease, does not appear to constitute a predisposition; for according to Dr. Parry, the greater number of fatal cases is between 25 and 35, and among the plethoric and robust; and, according to Dr. Wharton, persons between 20 and 30 are most subject to the disease. The former of these observers never saw a case in an individual under 20; the latter states that the disease is comparatively rare under 10. A singular fact mentioned by Dr. Parry is, that, while new comers in the miasmatic

districts are much more subject to common bilious fever than the old residents, the latter are equally liable to the affection under consideration. M. Bricheteau, physician to the Hospital Necker, has published several cases, which would seem to prove that intermittents, occurring in old persons, and especially those debilitated by chronic disease, are apt to take on the pernicious character, and to prove exceedingly fatal.

It is in the peculiar state of the innervation that we are to look for the source at once of the symptoms and the danger. This does not consist in a universal prostration of the nervous power. On the contrary, while defective in relation to certain functions, it may be unimpaired in others. Let us apply this view to an explanation of the symptoms. In the first place, in relation to the cases of collapse, in which the organic functions are especially concerned. This is prominently characterized by a want of action in the capillaries and extreme arteries. Some suppose that these vessels are spasmodically contracted. There is no evidence whatever of the existence of such spasm. They collapse simply because they contain no blood, just as they collapse in death. All parts of the organism receive a certain supply of nervous influence, which is essential to the due performance of their functions. The extreme vessels are probably not less under that influence than other parts. Evidence of this fact is abundantly supplied by physiology. In the pernicious fever, the innervation of the extreme vessels fails, and they cannot, therefore, perform their part effectively in the circulation. The blood enters them with difficulty, in their enfeebled state, and is carried through them very slowly. Hence the paleness; and hence also the lividness of the surface, owing to the stagnation of the blood. From the same approach to nervous death in these vessels, they allow the watery portions of the blood to ooze through them, almost as through dead membrane. Hence the profuse sweats. The coldness obviously arises from the languid circulation, and deficient change of blood. This condition of the capillaries may co-exist with considerable power in the heart; for the want of innervation is not necessarily equal in the whole circulation. Nay, the heart may be excited to tumultuous action by the calls upon it of the empty capillaries through the nervous centres. But sometimes the deficiency is experienced first and specially by the heart. In such cases, syncope or a tendency to it is the prominent symptom.

The function of respiration sometimes suffers from the same deficiency of innervation. The pulmonary capillaries cease to carry

forward the blood with the usual rapidity, and the due aeration does not take place. Hence the feeling of oppression of chest and want of breath, the deep sighing, etc. Some writers ascribe these phenomena to congestion of the lungs. They are the consequence of a want of proper decarbonization or oxidation of the blood, not of mere congestion. In the cases of Maillot, the lungs were found remarkably free from disease after death.

But how account for the oppression of the stomach, and the copious vomiting and purging? Upon the same principles exactly. There is no feeling of the stomach, unless it may be excessive spasm, which is more insupportable than that arising from deficient innervation. This can be readily understood by those who have experienced the distressing sensations of a half paralyzed limb. The bloody serum, or pure blood, discharged from the stomach and bowels, escapes through the coats of the vessels, exactly as blood percolates through the tissues after death; with this exception, that, as the vis a tergo still continues in some degree, it adds a vital expelling force to that of mere physical transudation. The alimentary canal may be said to sweat, like the external surface.

Diagnosis.—The disease exhibits different phenomena, according to the direction of the morbid innervation. Thus, in some cases the organic functions are especially affected, in others the animal. In the former, the evidences of disease are presented chiefly in the organs of digestion, respiration, circulation, calorification, and secretion; in the latter, most prominently in the brain. There are differences also in the disease, as it is evinced most strikingly in one of the organic functions rather than in another, though most of them are simultaneously affected. Thus, the force of the morbific cause appears to fall, in some instances, directly and especially upon the heart, in others upon the alimentary canal, in others again upon the surface of the body, either in its function of secretion or calorification.

The attack may occur at any time in the day, or in the night. Sometimes it comes on at once, with its own peculiar characters. More commonly, however, the first symptoms are those of ordinary miasmatic fever, or at most equivocal. Thus, the patient may have been seized with a paroxysm, differing apparently in nothing from that of a regular intermittent; and it is only in the second, or perhaps even in the third paroxysm, that the pernicious phenomena are exhibited. Or, the first symptoms may be chilliness, severe pains in the back, limbs and head, frequency and irregularity of pulse, flashes of heat alternating with slight perspirations,

etc., as if a remittent were endeavoring to form itself; when gradually or suddenly, as the case may be, an alarming change becomes obvious, and the patient is seen to be in the midst of the greatest danger. Again, a remittent may have existed for several days, without showing any peculiar symptoms; and then, with or without warning, may assume the pernicious character.

When the disease is fully formed, and exists primarily in the organic functions, the following symptoms are presented, though not all of them necessarily in every case. There is something strikingly peculiar in the appearance of the patient. The face, hands, and feet are of a livid paleness; the features shrunk and impassive, or singularly expressive of an amazement or alarm which the patient does not feel; the eyes often sunk in their sockets, though still clear and even bright; the skin contracted, and even the fingers shrivelled as if long soaked, like those of a washerwoman, in soap and water; the extremities and sometimes even the trunk chillingly cold, though not sensibly so to the patient; the surface either partially moistened with a clammy perspiration, standing sometimes in large isolated drops like bullæ upon the face and breast, or universally bathed in a profuse cold sweat. In some cases, the surface of the chest and abdomen is morbidly hot, while the extremities are cold.

The tongue is sometimes pale and cold, sometimes dry, and sometimes again little altered from its previous state. There is almost always a feeling of epigastric weight or oppression, with tenderness upon strong pressure; and often of intense internal heat, with excessive and unquenchable thirst. This sense of burning and thirst is among the most striking symptoms, when taken in connexion with the positive reduction of temperature over the greater portion of the surface, and sometimes even within, as indicated by the tongue and breath. The patient calls incessantly for cold drinks, and can never be satisfied. "Oh that I could lie in the river!" Oh that I could have a stream of cold water to flow through me!" are his frequent exclamations. But whatever he drinks is usually rejected almost as soon as swallowed. Incessant vomiting is one of the most frequent symptoms. Sometimes bile may be discharged; but generally the matter thrown up is either what may have been swallowed, or a muco-serous fluid, occasionally tinged with blood. In many cases, there is only extreme retching, with little discharge. The bowels are sometimes confined, but oftener the reverse; the dejections being exceedingly copious and frequent, in many instances not less than several

times an hour. The discharges sometimes consist of a bloody serum, like the washings of flesh, sometimes of blood, nearly or quite pure, and either dark-colored and uncoaguable, or partially in clots. Several ounces of blood are not unfrequently lost with each evacuation. Torti, an Italian writer upon this disease, considers among the cases of pernicious intermittents those attended with copious bilious vomiting and purging, or dysenteric discharges with severe abdominal pains. But as these are incomparably less fatal than the others, and depend rather upon vascular irritation of the organs affected than upon morbid innervation, they do not come within the definition of the disease as here given. Indeed the occurrence of bilious discharges may, in cases of pernicious miasmatic fever, as in those of epidemic cholera be looked upon as a favorable sign. In some cases, the abdomen is tympanitic; but this is not a common symptom.

The state of the respiration is often highly characteristic. The breathing seems like a succession of deep sighs, and occasionally each inspiration is interrupted in its progress, and effected as if by a double effort. This last is considered by Dr. Parry as a fatal symptom. Occasionally, however, the respiration is hurried, irregular, and panting. The patient frequently complains that he cannot get his breath, and desires to be fanned, or longs for the external air.

The pulse is small, irregular, sometimes corded, but often feeble, and even fluttering. Occasionally, it is intermittent. It is almost always very frequent, amounting to 120, and sometimes to 160 in the minute. Not unfrequently, it is quite absent at the wrist, though distinctly perceptible in the carotids. According to Dr. Boling, the action of the "heart is loud, strong, and tumultuous." This, of course, must have been so, in the cases observed by that writer. It is possible that the heart may have its natural share, and even more than its share of nervous energy, whilst the innervation of the extreme arteries and capillaries may be defective.

Along with the symptoms above enumerated, there are often great restlessness, general uneasiness, and jactitation. The patient, not aware of his extreme danger, and sometimes wondering at the anxiety exhibited by his attendants, often attempts to rise from his bed, and, if not prevented, will walk to the window or door of the apartment. The direct cerebral functions, including the action of the will upon the muscles, are singularly undisturbed, in the midst of the wreck of the organic life. The patient will sometimes walk about his room, hours after the pulse has ceased

to be felt at his wrist. Occasionally, as in cholera, there is painful spasm of the muscles of the extremities, especially of the calves of the legs. Indeed, the analogy between many of the symptoms above described, and those of epidemic cholera is very striking.

As already mentioned, the course of the symptoms is various. Sometimes they continue as above described, with greater or less intensity, mingled, perhaps, with unsuccessful attempts at reaction, for a period varying from one to three days; when, unless relieved by remedial measures, they terminate in death. The coldness increases, invading sometimes the whole body, except a small portion near the heart; the respiration becomes slower and more sighing, with lengthening intervals between the acts; the pulse gradually sinks, and often quite ceases in the extremities for several hours before death; the cerebral functions at last fail; the countenance assumes the hippocratic expression; and the patient usually dies tranquilly, as if falling into sleep.

But much more frequently, after continuing for three or four hours, evidences begin to show themselves of a disposition to reaction. The skin becomes gradually warmer, the pulse fuller and stronger; and something like a febrile exacerbation usually takes place, though in no degree proportionate to the preceding prostration. Not unfrequently, repeated partial efforts of this kind are made, before reaction is accomplished; and sometimes the symptoms abate without the occurrence of a real access of fever. The warmth may be perceived gradually, but often very slowly, diffusing itself from the central parts of the body towards the extremities, the surface at the same time losing its disagreeable clammy feel; the death-like hue and ghastly expression of the countenance disappear; the vomiting and purging, if before existing, diminish greatly, if they do not cease; the pulse resumes its ordinary fulness and strength, and at the same time becomes less frequent; and the patient seems as if about to be restored to health.

Sometimes a degree of frequency of pulse remains, with uneasiness of stomach, some general languor or distress, and more or less of the other phenomena of the paroxysm. It is only a remission that has taken place. In other cases, the patient appears almost free from disease, with a natural pulse, a natural surface, some return even of appetite, and only a certain feeling of languor, and perhaps of epigastric uneasiness remaining. This is an intermission. So far as concerns the treatment, the distinction is

of little consequence, for the same measures are necessary in either case. Perhaps the chance of a favorable issue may be greater, in proportion to the completeness of the intermission.

If the disease be not arrested by artificial means, the same train of symptoms sets in at the corresponding hour of the following day, or the day after that, and usually with increased violence. This paroxysm often proves fatal; but often, also, the apparently overwhelming flood of disease ebbs once more, and affords to the patient another chance of safety. If this is lost, the third paroxysm is, in the great majority of cases, inevitably fatal. The symptoms preceding death are those already described, as sometimes occurring without any remission, within one, two, or three days of the first attack. It is not, however, every case of pernicious miasmatic fever that ends unfavorably, even without treatment. Sometimes nature proves strong enough to resist the force of the disease; each succeeding paroxysm becomes milder and milder, and at length nothing but an ordinary intermittent is left. In other instances, the disease runs on with remissions, and either subsides into an ordinary bilious fever, terminating in the ordinary way, or assumes a malignant typhoid character of various duration and issue. It is usually deemed a favorable incident, when copious alvine evacuations of a dark, tar-like liquid takes place from the bowels; as they indicate a restoration of the suspended action of the liver.

It may be proper to notice some of the more prominent diversities in the variety of the disease above described; that, namely, in which the organic functions are chiefly concerned. Sometimes the force of the disease appears to be directed especially to the heart, and the prominent phenomena are those of excessive prostration of the circulation. The patient is extremely weak, and becomes faint upon the least exertion, with excessive feebleness of pulse, cold sweats, etc., but without nausea, vomiting, purging, or abdominal distress of any kind. In this, as in the other forms, there may be one or two remissions or intermissions; but, unless saved by remedies, the patient dies at last of pure syncope.

In other cases, the coldness is the most prominent symptom, gradually deepening as the paroxysm advances, and at length occupying almost the whole surface, without any primary extraordinary reduction of the pulse, and without disorder in the digestive functions. The heart at length gives way, and the patient perishes in the first or the second paroxysm.

Again, instances frequently occur, in which more or less fe-

brile action alternates or mingles with the signs of depression.—Severe pains in the head, back, and limbs, flushes of heat followed by partial perspirations, a certain degree of fulness and strength of pulse, and hurried and oppressed breathing, mark these vain efforts of the system. They are the mere flashes of the expiring taper; and finally give way before the force of the depressing causes.

Sometimes, the paroxysm of an intermittent runs its usual course; but the perspiration with which it ends becomes exhaustingly profuse, and the pernicious symptoms appear.

An equal diversity does not exist, in the cases of defective or deranged cerebral action, as in those in which the organic functions are primarily affected. In the former, the paroxysms are attended with a greater or less degree of stupor. Usually, they begin with simple drowsiness, the patient forgets quickly what he may have done, said, or desired; stops, when speaking, in the middle of a sentence, or uses one word for another, and often stammers. This dullness gradually increases into deep coma, from which the patient cannot be roused. The respiration is somewhat noisy, and stertorous, as in apoplexy. The pulse is full, and though generally somewhat accelerated, it is much less so than in other cases, and occasionally is even slower than in health. It often, too, has considerable strength. Sometimes there is a tetanic closure of the jaws; and, when they are forced open, and liquid introduced into the mouth, there is found to be great difficulty, if not impossibility of deglutition. Maillot, who treats of the disease as it occurs in Algiers, speaks of epileptic convulsions, with grinding of the teeth, and foaming at the lips, as having been sometimes observed. In some cases, the comatose symptoms occur in the first paroxysm; but more frequently they are not completely established until the second; the first having differed from an ordinary paroxysm only in being attended with drowsiness, and a degree of slowness or hesitation in speech. If the comatose paroxysm does not end fatally, after a variable duration, some perspiration takes place, sensation gradually returns, and the patient may have no symptom of the disease remaining; though, more frequently he continues somewhat soporose in the interval. The next paroxysm usually proves fatal, like an apoplectic attack, unless arrested. In some cases the comatose symptoms are preceded by delirium.

Dr. Boling, of Montgomery, Alabama, has noticed cases of remittent fever in which the morbid innervation took the character

of tetanic spasms. After a few febrile exacerbations, the approach of the paroxysm was marked by the occurrence of spasmodic phenomena, exactly resembling those of an attack of tetanus, which afterwards continued, increasing and diminishing in general with the exacerbations and remissions of the fever, until the close. In some instances, there was complete stupor or coma throughout the remainder of the disease; in others, only during the paroxysm; and in most, some degree of intelligence remained. In no case did the disease extend beyond the fifth day after the supervention of spasm; and generally, if not arrested, it ended fatally at an earlier period. The result was generally unfavorable.

It is of the utmost importance to be able to distinguish this from the ordinary forms of miasmatic fever; because the safety of the patient depends upon the adoption of prompt and vigorous measures, which are not deemed necessary in other cases. When fully formed, the affection can scarcely be mistaken, if the practitioner be upon his guard. Its possible occurrence in any instance of bilious fever, should be borne in mind.

Not unfrequently, in the intermittent form of the disease, the first paroxysm offers nothing to alarm the physician; and, not apprehending anything serious in the second, he neglects a most important opportunity for the use of remedies. It is, therefore, highly desirable to know whether there are any symptoms in the preliminary paroxysm which prognosticate danger. Often there are such symptoms, which the physician should be prepared to appreciate. An unusual paleness or lividness of the face; an absence of rigors or sense of chilliness, or a feeling of heat, while the extremities are really cold, and a want of uniform heat after reaction; a disposition to copious or frequent vomiting and purging, with a sense of unusual weight or oppression at the epigastrium; an extraordinary frequency, feebleness, or irregularity of the pulse; much anxiety, restlessness, or tossing about of the limbs, or a disposition to faintness; considerable delirium or drowsiness; a prolongation of the cold stage, and a less degree of febrile excitement than might have been anticipated; and the continuance in the apyrexia of some mental confusion, sleepiness, faintness, or unusual anxiety and uneasiness; any of the above symptoms should be a sufficient warning to the practitioner, not to delay for a moment the measures requisite for interrupting the paroxysms.

The prognosis is exceedingly unfavorable in all cases either not treated at all or treated inefficiently. According to Dr. Parry, three-fourths of the cases without treatment, or with the usual

treatment for bilious fevers, end fatally. Under proper management the result varies greatly with the opportunities of the physician. If the disease be intermittent, and seen so that remedies can be applied during the whole intermission, the life of the patient may almost always be saved. If seen during the first or second paroxysms, the dangers of these may often be averted, and many recover. Few comparatively can be saved from the third pernicious paroxysm. In the remittent or continued form, the danger, one would suppose, must be greater; yet, out of 186 cases of all kinds, Maillot had 38 deaths, or 1 in 5; while 99 remittent or continued cases, gave only 19 deaths, or very nearly the same proportion. This was under the quinia treatment. Bailly gives the result of 886 cases in the hospitals at Rome, in 1818 and 1819, at 545 cures and 341 deaths, or one out of 2.6. Dr. Parry gives the general result of special treatment at 1 death in 8 cases. Dr. Wharton states that the disease does not prove fatal in more than 1 to 12 or 15, "under proper treatment timely administered." Of course, the general average of deaths must be greater than this; for all cases cannot be seen in time.

Treatment.—One of the most obvious remedies is artificial heat. Heated bricks, bottles filled with hot water, heated flat irons, etc., may be placed along the limbs, without being in contact with them; the feet may be placed in hot water or mustard water; or the the whole body may be immersed, if convenient, in a hot bath of 105 degrees Fahr. Sinapisms may be applied to the extremities, and over the whole abdomen, or along the spine; or frictions may be made with heated cayenne pepper and brandy, or hot oil of turpentine. Some recommend very strongly, as the most efficacious external remedy, especially when the perspiration is profuse, dry friction over the whole body with cayenne pepper or mustard: and we have no doubt of its usefulness. Besides the measures mentioned, a strong stimulating liniment may be applied along the spine, so as to excite redness over its whole length.

While these external remedies are used, the Third Preparation of Lobelia must be freely used in teaspoonful doses till free and full emesis is produced, and a reaction takes place; then, let smaller and less frequent doses be given and continued as long as there is any tendency to congestion, or till the urgent symptoms cease. Let the vapor bath be often administered.

The following pill will be found valuable, viz:

R.—Sulph. Qunia,	- -	grains, 4
Capsicum	- - -	do 4
Camphor,	- -	do 2

Made into four pills. Dose, one every half hour before the expected chill.

Dr. Wood recommends quinia in the following urgent manner:—

As soon as a remission or intermission has been obtained, there is but one course of treatment, and that is all important. There should be no delay for previous treatment; no waiting for a more perfect relief from this, that, or the other symptom. Such dallying has been but too often fatal. No matter whether the patient has been under treatment during the paroxysm or not, no matter how partial the remission, provided it be a remission; no matter at what period of the interval the practitioner may have been called, his first, his last, almost his only thought, should be sulphate of quinia. This is the remedy for the disease, and only this. At least none other approaches to it in efficacy; sulphate of quinia being considered merely as the representative of the virtues of Peruvian bark. From thirty to sixty grains of this salt should be given from the commencement of one paroxysm to that of the next. If none has been given or retained, during the paroxysm, the whole should be administered in the remission or intermission. The dose must be regulated by circumstances. When the disease is quotidian, with a short apyrexia, the doses must be large; when tertian, they may be smaller. They should be administered so that the whole quantity may be got down two or three hours before the time for the recurrence of the paroxysm. From two grains up to half the amount necessary for the whole interval may be given at once. Nothing should deter from the administration of this remedy. Even excessive irritability of stomach is no sufficient contraindication. If the quinia be rejected alone, it should be administered in the hope that a portion at least may be retained; and recourse should be had to enemata, and to the endermic application.

The paroxysm is almost always prevented, or, if not, is rendered much lighter than it would otherwise have been. But the sulphate of quinia should be continued, in quotidian cases, without abatement, unless in consideration of its effects upon the head, until the period for the second paroxysm is passed. The disease is then subdued; or at least all of it which belongs to the pernicious fever. The remaining treatment, if any is requisite, must be conducted as in ordinary cases.

The Reform Physician however, will seldom have to push quinine to this extent if he is energetic in the treatment we first mentioned.

In a majority of cases, the same treatment we have described for remittent fever will be judicious in this disease. It only requires a more *thorough* application, and *larger* doses and *longer* continued.

In the treatment of simple continued fever of whatever grade of febrile excitement, we shall vehemently contend for the utility of lobelia emetics. Beyond a doubt, there is a co-existing peculiarity in the influence or power of this article to equalize the circulation, independent of its emetic property. If the pathological enquiry is made in what resides this paramount singularity, the answer may safely be made in its *retaining* power. If it is of the first importance to equalize the circulation and obviate any local determination; the impression of a lobelia emetic is most salutary, as the rapidity of the circulation is checked—the constriction of those infinitely small vessels, the capillaries,) gives way—the pores are again opened, and permitted to carry along their usual burdens—the tension upon the surface is taken off—the cutaneous vessels are relieved and unloaded, and a *re*-distribution of the blood takes place, until a just balance is restored. This is brought about by the controlling influence of lobelia upon the capillaries, partly by its relaxing agency—at the same time it tends by its revulsive, emetic power, to throw everything again upon the surface. It is in this way, that those great *fetes* in practice are sometimes performed by the Thomsonians upon the chronic patients. Take a single example. Suppose a patient recovered from this same disease we are now contemplating, under the usual form of medication. Now, what gentleman of candor will not allow, that the exhalents are frequently so deranged, so morbidly affected in their functions, that hydropic, or watery effusions, take place as secondary diseases? and it is by repeated courses of medicine, that these old habits and associations, (or rather new ones,) continued for a long time under peculiar modifications, are broken up. The perfect revolutionizing power of lobelia, in a great variety of diseases, cannot be appreciated, but by those who are acquainted with its operation. These assertions are not the offspring of a heated imagination, or an ardent enthusiasm—but the plain sober facts of every day's observation—and "familiar as household words," with the Reform fraternity. Were we to make an appeal for the truth of our language, the united voices of every Reformer in the land would give the same reply, until they made the very *echo's head ache!*

The influence of this emetic is very widely felt—cutaneous con-

striction is taken off—absorption, and particularly of the lungs, is promoted—excitement is subdued, and that equality of the circulation, upon which a condition of health so much depends, is brought about and perpetuated.

However efficacious the first emetic may be in softening the severe indications, the use of lobelia is not to be immediately discontinued. Broken doses should be repeated to keep the stomach constantly nauseated; and a full emetic be given in severe cases, every twelve or twenty-four hours.

Collateral support is also obtained by the liberal use of composition. If the skin is dry and hot, our attention should be directed to its relief by sponging frequently with tepid water, or salæratus water. The state of the pulse will reveal to us from time to time the true condition of our patient.

If our ambitious hopes seem to be a little checked in the outset, by the aggravated symptoms of our patient not being lessened, our patience and perseverance are not to be relinquished on *that* account. As in the old practice, we are directed to cord the arm, and *bleed*, *bleed*, *bleed*—at intervals of six and twelve hours, until the marked indications are subdued—so *in this*, the agency of this remedy, or this combination, is not to be discontinued, or abandoned as useless, because every symptom on its first exhibition does not yield to its power. Perseverance then, is the watch-word.—The bowels should be duly liberated from time to time by the use of the syringe, or some gentle aperient medicine. To allay a troublesome thirst, any of the common herb or mint teas, or toast-water, may be taken in any quantity. As soon as the febrile excitement of the system is repressed, tonic medicines should be freely given till the health is again restored.

If vascular action is very inordinate the combined operation of the bath and lobelia will most effectually diminish its violence, and lesssen the momentum of the circulation. That the system may have the full advantage of this operation, the admonition must always be borne in mind, that it is to be employed in an early period of the malady.

There is always an impression made by a thorough operation of this character in the inception of the disease, which proves, beyond the possibility of cavil or doubt, its unequivocal superiority.

In the treatment of every form of fever, the prevention, or speedy removal of local inflammation, constitutes a chief object of remediate attention; and certainly there is no general remedy which answers this object more directly, than the prompt and ju-

dicious employment of the courses of medicine. Torpor of the cutaneous exhalents, is generally the first link in the chain of morbid actions which take place in the development of febrile diseases, and continues often throughout the the greater part of their course, unless timely overcome by the employment of suitable diaphoretics.

In vain do we look for the subsidence of fever, so long as this important emunctory remains inactive. If we fail to procure an adequate discharge from the skin, great advantage will be derived by the secondary sudatory effects of lobelia, given in small doses, independent apparently, of its emetic property. For this purpose, five or seven grains of lobelia may be combined with one half of a teaspoonful of composition, and given every two hours. The effect will be to moderate febrile excitement, diffuse a gentle diaphoresis over the system, excite a slight degree of nausea upon the stomach, and, perhaps, after repeated doses, produce gentle vomiting.

As the bowels are almost invariably more or less constipated in the varieties of fever under consideration, and liable, therefore, to irritation from this source, they ought always to be evacuated by the aid of the syringe and gentle aperients.

Without doubt, the secretions which flow into the intestinal canal, in every variety of fever, become additional sources of irritation when suffered to accumulate; hence with a view to remove these annoying causes, laxative medicine should be given. Drastic purging, on the other hand, must not be tolerated, as it would tend to create weakness in the bowels, and thereby local inflammation.

TYPHUS ICTEROIDES—YELLOW FEVER.

Description and Causes.—Yellow fever exhibits a great diversity of phenomena. Epidemics of it, occurring in different places, appear, from the testimony of eye-witnesses, to have been marked by very different characters. Miasmatic exhalations have impressed upon it, in some instances, a close analogy in its symptoms and course with ordinary bilious fever. The effluvia generated among the filth of congregated masses of people, may be readily supposed to have occasionally given it a typhus form. The scorbutic tendency of system, generated in garrisons and ships, must have often modified its symptoms. To describe mi-

nutely all the varieties arising from these, and other similar causes, would be incompatible with the objects of this work. An acquaintance with the characteristics of the disease, in its ordinary form, and with the morbid effects of the causes alluded to, in connexion with the obvious influences to which the patient may be exposed, will generally enable the practitioner to detect and discriminate its various complications. As in most other fevers, the state of system may in this be sthenic or asthenic, inflammatory or typhous. Owing to the different susceptibilities of individuals, and the variable intensity of the cause, there is every grade of violence, from a mildness in no way alarming, to the most fatal malignancy. Curious and inexplicable anomalies also not unfrequently occur, which defy classification.

There can be little doubt that the cause of yellow fever is peculiar and specific, as much so as that of small pox or scarlatina. But great diversities of opinion have existed upon this subject.—Some of these it will be proper to examine in this place.

A very prevalent hypothesis has been, that the cause of yellow and billious fevers are identical; in other words, that the former disease, as well as the latter, proceeds from marsh miasmata. The chief arguments in favor of this notion are, that the two forms prevail in hot countries, and at the same season of the year; that when the yellow fever becomes epidemic, the bilious fever is also apt to be peculiarly rife; that acclimated individuals are less liable to the attacks of both than the unacclimated; and finally, that no essential difference exists between the symptoms and course of the two diseases. But these arguments will not bear examination.

It is true that the two fevers prevail in hot countries and in hot weather. So do cholera, dysentery, and hepatitis; yet no one considers these as identical with yellow fever. But, though heat is essential to both, their localities, and other circumstances in relation to their prevalence, are very different. Bilious fever occurs abundantly, and even malignantly, in many situations where yellow fever is never seen. Thus the former disease is not less prevalent, nor less fatal, in Asia, Eastern Europe, and Eastern Africa, where the latter is seldom heard of, than in the West Indies and other parts of tropical America, where it is very common. Bilious fever is quite as prevalent, and quite as violent, in the interior of miasmatic countries as near the sea; yellow fever seldom occurs at any considerable distance from the sea-coast, or the borders of navigable streams. The latter disease is

almost always confined to a dense population, as for example to cities and garrisons; one of the most striking circumstances in relation to the former is, that its cause appears to be neutralized by the atmosphere of cities. Thus, Rome is healthy, while the plains about it are devastated by miasmata.

It is also true that the yellow and bilious fevers are apt to prevail at the same time, the former in cities, the latter in the country. But this is not always the case. Dr. Dickson states that, at Charlestion, the yellow fever has often raged violently in the city, when the surrounding country was either not more sickly than usual, or remarkably exempt from disease.

Though acclimated persons are less liable to both diseases than strangers, yet this difference of susceptibility is infinitely greater in the yellow than in the bilious fever. The former very seldom attacks an adult native in places where it is epidemic, however fatally it may rage among strangers; while no part of the population is entirely exempt from the latter in its localities.

It is not true that the symptoms of the two diseases are the same, at least in their well developed forms. They are, on the contrary, strikingly different. The febrile stage of yellow fever is continuous, like that of small pox or measles, for one, two, or three days, and then ceases; while bilious fever has a tendency to remission or intermission every day, or every other day, to the end of the disease. In the latter, the secretion of bile is usually increased, in the former diminished. Though it is possible that the turbid conjunctiva, and purplish flush of the upper part of the face, so common in yellow fever, may occur in some cases of the bilious, they are uncommon in the latter. Gastric inflammation, though common to the two diseases, is much more striking, as a general rule, in the yellow fever. The black vomit of this disease is entirely different from the black discharges of bilious fever, which are homogeneous, and consist of altered bile, not altered blood. Uncomplicated yellow fever never ends in regular intermittent; while this is an exceedingly frequent termination of bilious fever. It has been said that yellow fever is an aggravated form of the bilious; but this is not so. Many cases of the former are as mild as the mildest of the latter; and bilious fever is sometimes quite as malignant as the worst form of the yellow; yet in both instances, there is a characteristic difference of symptoms observable.

An autumnal attack of bilious fever, so far from giving any future exemption, is well known to dispose to a second attack in

the following spring. The case is exactly the reverse with yellow fever. This disease rarely occurs more than once in the same person. It is true that this fact is denied by some; but it appears that no impartial person can read the testimony upon the subject, and refuse credence to the statement. Second attacks of yellow fever are probably not more frequent than second attacks of small pox; and, when they do occur, are generally light.

It is very possible that the causes of the yellow and bilious fevers may sometimes co-operate, and thus produce modified cases. A patient may be attacked with yellow fever, while laboring under a remittent or intermittent, which will thus assume the character of the former; or a predisposition to intermittent may exist which will exhibit itself after the cessation of the more violent disease. Cases of this kind have undoubtedly occurred, and lent some countenance to the notion of the identity of the two fevers.

Dissection presents somewhat different phenomena in yellow and bilious fevers. The stomach is inflamed in both, but in the latter seldom if ever contains the true black vomit. The liver in yellow fever is often bright yellow, dry, and anemic; in the bilious, it presents wholly different phenomena. The gall bladder in the latter is usually distended with black bile, in the former is seldom distended, and often contains less than in health. The spleen in bilious fever is almost always enlarged and softened, in the yellow it is often little if at all changed.

From these considerations, it appears clear that these two diseases are quite distinct, and arise from wholly distinct causes.—What, then, is the nature of the cause in yellow fever? Is it as many have supposed, a peculiar contagion? Few questions in pathology have been more largely, and more warmly discussed than this, which therefore, requires a particular notice here.

The *contagious nature* of yellow fever has been maintained upon the grounds, 1. That it always occurs near wharves where vessels arrive from abroad and unload; 2. That it has thus been carried to isolated spots, where the disease had never been known to prevail before; 3. That individuals, going from an infected neighborhood into a healthy one, have become the centres of a new infection; and 4. That, like contagious diseases in general, it cannot be taken a second time.

But these arguments are met by powerfully opposing facts.—Thus, in hospitals situated in healthy districts, though crowded with yellow fever patients, the disease is never imparted to the nurses and other attendants. From vessels arriving in healthy

ports yellow fever patients are often landed, sometimes in considerable numbers, without propagating the disease. In cities where the disease prevails within limited districts, only those persons are attacked who reside in or visit the infected spot; and patients seized, in consequence of such exposure, and carried into healthy parts of the city, do not impart the disease to those about them.—Hundreds of instances occur, in extensive epidemics, in which patients originally seized in cities are scattered through the country; and yet the instances are exceedingly rare, in which it is even pretended that the disease is thus communicated. Attempts have been made to propagate the disease by inoculation with the blood and secretions of those affected, but without success; and even the black vomit has been swallowed with impunity. It is obvious that the argument drawn from the exemption afforded by one attack of the disease is only analogical, and is deserving of no weight unless supported by positive facts.

For these and perhaps other reasons, the great majority of physicians who have had any opportunity of seeing yellow fever, altogether deny its contagious nature. This fact is rendered incontestible by the industry of the late Dr. Chervin, who personally collected the written opinions of almost all the practitioners who had seen yellow fever in portions of the West Indies, and on the Atlantic coast of the United States. The number was very small of those who expressed a belief in the existence of a contagious cause. It must not be denied, however, that this number has lately somewhat increased. The contagionists meet the opposing facts above stated by admitting that the disease is seldom imparted from one individual to another in a pure and perfectly healthy atmosphere; and that it requires a certain corrupted condition of the air, in order that the personal effluvia may produce their effect. But this is contrary to all that we know of other admitted contagious diseases. There is not one of them which may not be imparted, in the purest state of the atmosphere, provided the contiguity be sufficiently close. It seems that the doctrine of the contagiousness of yellow fever, in the ordinary meaning of that term, is quite untenable.

Can it be that the cause is a peculiar miasm, distinct from that which produces bilious fever, but resembling it in being a product of the decomposition of organic substances? Marsh miasm is supposed to result from vegetable putrefaction. That which produces yellow fever, if it be a miasm, must in some way be connected with animal matter; for it is generated, or at least is effect-

ive only where men congregate. Hence its origin in cities, garrisons, and occasionally in ships. In all these situations we have animal effluvia, or animal excrement, often mingled with vegetable matter in decay. Along wharves, and in docks into which the common sewers empty, we have these conditions in an eminent degree, ready to be called into operation when a high and long-continued temperature shall penetrate to the bottom of the water, and set the fomentation into movement; and it is well known that these are the parts of cities where the yellow fever is most apt to break out. We hear nothing of yellow fever in the Spanish encampments on the Mexican coasts, during the conquest. It was only after cities sprang up that it made its appearance.—In favor of the supposition of a miasm thus generated, are the facts that, as in ordinary remittents and intermittents, the cause is most energetic in the night, or in the evening and morning, while the ground and adjoining water are covered with fog or mist; that it seldom in temperate latitudes begins to exert its influence before the season when dew forms at night; and that it often gradually diffuses itself in all directions from some central spot. But, if the cause be a miasm, as supposed, how does it happen that this is not generated wherever the conditions above mentioned exist? Why, for example, it is not produced in Calcutta, Cairo, Rome, etc., as well as at Havana, New Orleans, Philadelphia, or Gibraltar? Why is it occasionly developed in isolated spots, upon the arrival of an infected ship, though never known to exist in these spots before? Why is it sometimes communicated from one ship to another? We can easily understand that a vessel, with foul bilgewater in her hold, and a crowded crew, in a hot climate, may generate a febrific miasm; or that another vessel sailing from an infected port may carry the poison shut up with the air under its hatches. We can also understand that either of these vessels, arriving in a port, may give the disease to those who may visit it, and breathe its foul air. But how explain that the disease shall then spread over a considerable space, and prevail for a considerable time, after the vessel has been thoroughly cleansed, or removed, and the air proceeding from her thoroughly dissipated?

Diagnosis.—The attack is sometimes preceded by the usual preliminary symptoms of fever, but perhaps quite as frequently comes on abruptly, in the midst of ordinary health. It is said to occur very frequently in the night. There is usually some chilliness at the commencement, seldom, however, amounting to rigors or shivering; and this symptom is often altogether wanting. Among the

most characteristic phenomena of the incipient stage are severe pains in the back and limbs. After febrile action has become established, the skin is hot and dry, the pulse frequent, the respiration hurried, the face flushed, and the eyes red and watery. The tongue is usually moist and covered with a white fur, and the throat occasionally so sore, as to render deglutition difficult. Nausea or other uneasiness of the stomach, with or without vomiting, not unfrequently attends the disease from the commencement; but, in the majority of cases, the gastric symptoms are not fully developed until after the lapse of some time, perhaps from twelve to twenty-four hours, when they become very prominent. The patient complains of a burning pain, or a feeling of weight or tension, or a vague sense of oppression in the epigastrium; pressure upon this region generally occasions severe pain; and the stomach is exceedingly irritable, often rejecting everything that is swallowed, and throwing up its own morbid contents when undisturbed. The act of vomiting is often violent, with retching, and much distress from the extreme tenderness of the stomach. Flatulence is also occasionally a troublesome symptom. The desire for cold drinks is usually extreme; and ice, held in the mouth and slowly swallowed, is very grateful, in consequence of the intense gastric heat. The bowels are ordinarily costive, and sometimes obstinately so; and, when discharges are obtained, they are generally unhealthy in appearance and offensive. But the nervous symptoms are probably those from which the patient suffers most. There is almost always headache, generally in the forehead and eyes, and sometimes confined to one side. This is often exceedingly violent, and continues in a greater or less degree through the whole period of febrile excitement. The pains in the back and limbs also, which often usher in the disease, continue after the fever has been fully formed, and are sometimes insupportably severe, extorting groans and even screams from the patient. The mind is much disturbed in this stage. The patient is apprehensive, anxious, and exceedingly restless; and the countenance is strongly marked with the expression of these feelings. Delirium is not an uncommon symptom; and shows itself in various degrees, from slight mental confusion to maniacal violence, with a wild fiery look, and uncontrollable movements. Sometimes there is a greater or less degree of stupor, through which, when short of coma, the signs of distress show themselves as through a veil.

These febrile symptoms continue, usually with little or no remission, for a period varying from a few hours to three days, and

sometimes even longer. The duration is shorter in the more violent cases, and longer in the mild; and in the latter is sometimes extended to four or five days, with a greater tendency to remission. Having run its course, the fever subsides, and a great apparent amelioration of the disease is experienced. The skin becomes cooler and softer, the pulse nearly or quite natural, the respiration calm, and the stomach comparatively quiet. The headache, and the excruciating pains in the back, if not previously relieved, disappear; and the patient, freed from the distress of body and mind, becomes comparatively cheerful and hopeful, and not unfrequently confident of recovery. It is not unusual to find him sitting up, either in or out of bed, and to be told by him that he is quite well. But this is a delusive calm. Sometimes, indeed, convalescence dates from the subsidence of the fever, in mild cases; but generally the great struggle is yet to come. This apparent amelioration is not, in any respect, comparable to the remission or intermission of miasmatic fever. The disease still continues unabated. It is only that the febrile phenomena have disappeared under the failing powers of the system. The struggle against the noxious influence has ceased for a time. The continuance of the fever would be a favorable rather than an unfavorable sign; as it would evince a greater ability of the system to cope with its ferocious adversary.

There are phenomena, even during this temporary calm, which evince the existence of undiminished danger. Upon pressure in the epigastrium, the tenderness, instead of being diminished, is often found to be greater even than before. The redness of the conjunctiva, and the flush of the face may be gone; but in their place is often a yellowish or orange color, which gradually extends itself from the forehead and eyes to the face, neck, and chest, and ultimately, in a greater or less degree, over the whole body. The urine also has a yellow tinge, which, even though the discharge may appear in mass of a dark-brown color, may be detected when it is in thin layers. The pulse in sometimes even slower than in health, and has been known to descend to 40 in the minute. In bad cases, there is sometimes a little heaviness or stupor. This period of apparent abatement may continue but a few hours, or may be protracted for twenty-four hours.

Another class of phenomena now ensue; those, namely, of debility or prostration. In severe cases the weakness is extreme.—The pulse is quick, irregular, and feeble; the skin is yellow, orange, or of a bronzed aspect; the blood appears often to be nearly stag-

nant in the capillaries, so that, when removed by pressure with the finger from a portion of the skin, the color returns very slowly; the dependent and extreme parts of the body, as the fingers, toes, scrotum and back, become of a dark purplish hue. The tongue is now often brown and dryish in the centre, or smooth, red, and chapped; and sordes occasionally collect about the gums and teeth. The stomach resumes all its former irritability; everything swallowed is thrown up again; and a new matter is ejected, consisting of brown or blackish flakes or particles diffused in a colorless liquid, which may be at first slightly tinged by them, but ultimately becomes black and opaque. In very malignant cases, the condition of the system above described may come on even so early as the first day; and occasionally, the extreme capillary prostration, with the purplish skin, and a pulse scarcely perceptible at the wrist, ensues, while the heart and large vessels are still beating tumultuously. The urine, often scanty and high-colored during the fever, is sometimes nearly natural, sometimes almost or quite suppressed, and occasionally, though rarely, retained. At this stage of the disease, hemorrhage occasionally takes place from various parts of the body, especially from the mucous membranes. Blood oozes from the gums, the fissures in the tongue, the fauces, and the nostrils. It is sometimes also vomited, or discharged by stool, or with the urine; and petechiæ and vibices from its extravasation, appear upon the skin. The irritability and extreme distress of the febrile stage are now replaced by an extraordinary apathy; and the countenance expresses a quiet resignation, or gloomy indifference. The pulse at length almost ceases; the respiration becomes slow, sighing, and occasionally interrupted by hiccough; the skin assumes a cold and clammy feel; the bowels often give way, and discharge large quantities of black matter, similar to that ejected by the stomach; low delirium sets in; an offensive odor sometime exhales from the whole body; the eyes becomes sunken, and the countenance collapsed; and death takes place, often quietly, but sometimes in the midst of convulsions. Black vomit, yellowness of the skin, and hemorrhage, have been mentioned as attendants upon this last stage; but patients often die without them.

Instead of pursuing this fatal course, the system very often reacts after the period of abatement, and a secondary fever sets in, which may be of various grades of violence, but may always be regarded as a salutary effort of nature, or at least as a sign that the vital energies are not yet exhausted. This febrile affection continues, without any special or peculiar symptoms, a variable length

of time; sometimes speedily terminating in health, with the ordinary signs of convalescence, sometimes ending in fatal exhaustion and occasionally running into a typhoid form, which may last, with variable results, for two or three weeks or more.

When convalescence takes place from severe cases of yellow fever, it is commonly tedious, in consequence of the amount of repair which is necessary to restore the dilapidated organs; and the patient is often incommoded, in the course of it, by obstinate and unhealthy sores or abscesses in various parts of the body.

From a review of the course of yellow fever, as above described, it will appear that it has usually three distinct stages. The first is that of the primary febrile action, which continues from a few hours to several days, on the average, perhaps, from thirty-six to sixty hours. The second is that of subsidence or abatement, in which the exhaustion of the excitability leaves the system in a state of temporary repose, and which may continue, in a greater or less degree, from twelve to twenty-four hours. The third stage is that of secondary fever, or collapse, according as the system has or has not the strength to rally under the depressing influences to which it is subjected. In fatal cases, death takes place most frequently on the fourth, fifth, or sixth day, though sometimes as early as the third, and sometimes as late as the ninth or even the eleventh. In some rare instances, in which the disease runs into a protracted typhoid form, it may be considerably postponed.

It has been already stated that the disease is liable to great diversity. Most frequently the action in the first stage is inflammatory or sthenic, with a full, strong, and sometimes tense pulse.—In other instances, the state of system is asthenic from the commencement; the pulse being very frequent and feeble during the febrile excitement, or the general strength being inadequate to rally from beneath the first force of the blow, and the symptoms at the beginning being those of great prostration, especially of the whole capillary system. In the fashionable language of the day, these cases are denominated congestive. Universal weakness, with obscure, and as it were paralytic pains in the back and lower extremities, and a sense of weight or stupefaction in the head; the skin dry, unctuous, or perspiring, without tone, and without heat, unless near the centre of the body; the pulse sometimes frequent and sometimes full, but often slow, always feeble, and occasionally almost wanting at the wrist, while the heart and carotids may be throbbing tumultuously; the face pale or purplish, with an expression of countenance either stolid and apathetic, or sullen, or

such as usually indicates a feeling of horror or intense agony; these are some of the symptoms which mark the most malignant cases. Occasionally the system evinces a disposition to rally, and signs of frebrile action are exhibited; but these for the most part quickly give way, and complete collapse ensues. Copious black vomit, occasional hemorrhage and petechiæ, a dark mahogany or bronzed color of the surface, and an almost entire annihilation of sensibility, precede death, which often takes place on the third or fourth day.

Sometimes the patient is struck down suddenly with stupor or coma, and death is preceded by convulsions. Sometimes the most prominent symptoms are those of overwhelming precordial oppression, with a slow, labored respiration, and deep sighs and groans. Occasionally the force of the disease appears to be expended upon the stomach, producing incessant vomiting, with intense epigastric distress. In other instances, the animal functions seem to be at first almost untouched. The patient may be walking in the streets, and nothing call attention to his case, unless, it may be, an unusual expression of countenance. Upon his pulse being examined, it is found to be exceedingly feeble, if not quite absent at the wrist. Black vomit and death speedily ensue.—These have been called *walking cases*. Again, there are instances in which the pulse is nearly natural, the tongue clean, and even the stomach calm, from the commencement; but great anxiety and distress, with excessive restlessness, give occasion for alarm; and the worst apprehensions are soon confirmed by the occurrence of black vomit and fatal prostration. Dr. Rush used to warn his pupils against the natural tongue, and the natural pulse in yellow fever.

But its must not be forgotten that, while these terrible cases are not unfrequent during the prevalence of this pestilence, there are others also in which the disease puts on a very mild form, with the ordinary symptoms of moderate febrile excitement, which subside in three, four, or five days, very often with perspiration, leaving the patient quite convalescent; and that between these two extremes there is every possible diversity of grade.

In some epidemics, an eruptive affection, of the character of a rash or papulus, has been noticed, during the first stage, upon the face, neck and upper part of the body. Dr. C. H. Stone, in his account of the yellow fever which prevailed at Natchez in 1848, states that the breath was generally offensive.

It will be proper, before closing an account of the symptoms, to call attention to some of the more prominent of them severally.

The pulse is usually, in the inflammatory cases, and in the febrile stage, from 100 to 120, with considerable force, and sometimes tense. Occasionally it is jerking and even bounding. In the more feeble cases it is often very frequent, from 120 to 140, for example; but at the same time small and weak. In the same kind of cases, it is in some instances very full, and may readily deceive a careless observer; but it may be at once distinguished by yielding with great facility under the finger, as if filled with air. In the second stage, it becomes slower, sometimes more so than in health, and is not unfrequently nearly or quite natural. In the last stage, it again increases in frequency, but is almost always rather feeble, and, in the prostrate condition, is small, extremely weak, often irregular, and sometimes nearly or quite absent for some time before death. In the asthenic cases, where there is little or no reaction, it may have this latter character from the commencement.

The *countenance* is peculiar in this disease. Allusion has already been made to its expression in different stages. But there is one characteristic condition which requires a more detailed notice. We allude to the colour of the conjunctiva, and that of the face. Even in the earliest period of the disease, the white of the eye is often reddened and turbid, and in bad cases appears sometimes almost as if bloodshot. At the same time the forehead and upper part of the face have a reddish color, inclining somewhat to purple.

The *yellowness of the skin* to which the disease owes its ordinary name, though a common, is by no means an invariable symptom. It begins usually about the third or fourth day, often with the commencement of the second stage. Appearing first in the conjunctiva, it extends successively to the forehead, face, neck and chest, and sometimes affects the whole surface. It is said to be sometimes more intense and universal after death than before it.—The tinge varies with the natural color of the skin and the grade of the disease, from a deep lemon yellow to an orange color, or even the hue of bronze; the latter being ascribable to its admixture with the dark-red color of the stagnant blood. Sometimes the color is imparted to the perspiration, and tinges a handkerchief yellow. Different opinions have been entertained as to its origin. It is probably dependent upon a change in the blood, giving rise to an excessive production of the same coloring principle that imparts yellowness to the bile. It often affects the cellular and adipose tissue, as well as the skin, and has been observed in the bones.—

The same coloring matter is thrown out with the urine. In bad cases, the surface is often covered with petechiæ before death. In those of a milder character, Dr. Magruder noticed, in an epidemic which prevailed at Vicksburg in 1847, the frequent occurrence of a lichenous or exanthematous eruption, which was the precursor of convalescence.

The *black vomit*, so striking a symptom in this disease, does not usually make its appearance until in the second or third stage. The matters ejected from the stomach are at first such as have been swallowed, and afterwards usually a little bile, probably from the gall-bladder, and the vitiated secretions of the stomach itself. These are sometimes so acrid as to inflame and excoriate the œsophagus and fauces. The black vomit appears often at first in small quantities, and sometimes as if not fully formed, the flakes being less intensely black than they afterwards become. It afterwards increases, and the quantity discharged is often enormous. The mode in which it is thrown up differs from ordinary vomiting. It appears to gush forth, as if without effort on the part of the patient, and sometimes almost without his consciousness; being not unfrequently discharged upon the bedclothes. Sometimes it is ejected by mouthfuls, by a sort of regurgitation, and portions of it come up occasionally with hiccough. There are cases in which, though this matter may exist in the stomach, very little is discharged, in consequence of an utter loss of power, or of sensibility in the gastric coats. In such cases, a loud gurgling sound can often be heard upon every movement of the patient's body, owing to the presence of air and liquid together in the stomach; and there is often considerable fulness or distension of the epigastrium.

Black vomit is either nearly tasteless or sour; and to chemical tests is in general decidedly acid. Formerly, it was thought to be black bile. Dr. Physick suggested that it might be a secretion from the stomach, and supposed that it was thrown out in order to relieve the inflamed vessels. At present, it is believed to be blood somewhat altered, either by a feeble secretory action of the membrane, or by the acid which exists in the stomach. We are inclined to the opinion, that the blood undergoes some modification either in the capillary vessels, or in its exit from them through the epithelium. Were the character of the black vomit dependent on the reaction of gastric acids, as is supposed by some, it should be changed for that of unaltered blood upon the free exhibition of magnesia, instead of remaining unaffected, as it actually does. Black vomit, though apparently homogeoeous when discharged, sepa-

rates upon standing into two parts; an insoluble black flaky matter, like coffee-grounds or soot, which subsides, and a clear viscid liquid, which occupies the upper part of the vessel. The insoluble matter is probably the altered solid and coagulable matter of the blood, the clear liquid its serum. Dr. Rhees, of Philadelphia, discovered innumerable animalcules by means of the solar microscope. When the matters fresh thrown from the stomach were examined, the animalculæ were alive, and in constant motion; but if taken from the dead subject, or inspected after standing some time, they were always dead and quiescent. Comparative examinations were made of the discharges from the stomachs of patients ill with autumnal bilious and remittent fevers, but no similar appearances were discovered. In a communication to the London Lancet, Dr. Manly states that he has repeatedly noticed animalcules in black vomit, belonging to the genus Acarus, but of unknown species; but other observers have failed to find the appearances noticed by Dr. Rhees; and the presence of animalcules certainly cannot be considered as in any degree characteristic.—Black vomit has recently been submitted to careful microscopic examination by several observers, among whom may be mentiontioned Dr. J. L. Riddell, of New Orleans, Dr. M. Michel, of Charleston, S. C., Prof. A. Clark, of New York, Dr. Hassall, of London and Dr. Leidy, of Philadelphia, with results confirmatory of the views above given as to the nature of this morbid product. Besides the different epithelial cells of the mucous membrane, which are found in different stages of developement and disintegration, the most prominent constituents are blood corpuscles variously altered, and a black granular or amorphous matter, probably resulting from the breaking up the solid ingredients of the blood. Microscopic fungi have also been noticed; but they were not uniformly present, and were probably developed by changes in the black vomit after its production. Specimens examined chemically by Prof. R. E. Rogers, of Philadelphia, at the request of Dr. La Roche, were found to contain, besides free muriatic acid, many of the constituents of the blood, especially albumen and iron. There can be little doubt, therefore, that the proper black vomit of yellow fever is essentially disintegrated blood.

The initial stage of most fevers has so many symptoms in common, that it is often very difficult, if not impossible, to discriminate between them in the outset. Yellow fever, for the first day or two, is not an exception to this rule. Nevertheless, there are often symptoms which lead to a very probable inference as to the

nature of the disease. The severe pains in the loins and lower extremities, the turbid conjunctiva, and the darkish-red suffusion of the upper portion of the face, are such symptoms. At a more advanced period, the excessive irritability of stomach and extreme epigastric tenderness; the regular continuance of the fever, and its subsidence after a duration of one, two, or three days; the supervention of yellowness of the eyes and skin, when the fever subsides; the great prostration, or the febrile reaction which follows the subsidence, and finally the occurrence of black vomit, are the most important diagnostic signs. In forming a judgment as to the nature of any doubtful case, reference must also be had to the circumstances under which it occurs; whether, for example, the disease is prevalent or not, whether the conditions necessary for its production are present, and whether the patient may have been exposed to the cause of it elsewhere.

Yellow fever is a very fatal disease, being scarcely exceeded, in this respect, by any other acute febrile affection. It varies greatly in violence, at different periods and places of its occurrence.—Sometimes it is so virulent, that the great majority of those affected perish; in other instances, it is mild, and few comparatively die. When it occurs epidemically, the first cases are generally the most severe, and sometimes almost all end fatally. Afterwards, the disease becomes milder, and, towards the close of the epidemic, it sometimes happens that almost all recover.

Treatment.—If yellow fever has been a fertile subject of dispute in relation to its pathology and cause, it has afforded no less scope for contention, with regard to its remediate management.—While some recommend, strenuously, a prompt and energetic treatment, others advise mild and soothing remedies. However, it has never been managed satisfactorily by the old physicians, either by a mild or rigid treatment. When this form of disease made its appearance in Charleston, in August 1838, Dr. Nardin declared, that cases he treated with Botanic remedies, yielded to his means as readily as any other form of acute disease. He lost no case where he had the sole management. So with the lamented Griffith, of Augusta.

The treatment must be rigid in the outset of this disease, from the fact that after it has run any length of time, very great debility is induced. An emetic should be administered every ten hours, at least; the bowels evacuated and kept open by the constant use of some mild aperient medicine. Hepatic medicines are decidedly indicated, and should be administered freely. The bath can by

no means, be dispensed with ; it should be applied before and after each emetic, or as often as it may be deemed expedient, for the purpose of relaxing the constricted capillaries. A decided tonic treatment should not be resorted to as long as there is any degree of fever. After the fever has abated, then it will be altogether necessary to put the patient on the tonic and stimulating treatment, and not until then. Immediately after the operation of the emetic, it will be highly proper to administer a portion of laxative bitters for the purpose of toning and strengthening the stomach. Let the system be cleansed first of morbid matter, and then the tonic treatment is not only allowable, but altogether necessary.— Notwithstanding emetics are generally condemned by the Old School Practitioners, they do, unquestionably, moderate the febrile excitement, predispose to perspiration, and relieve gastric distress.

When there is much irritability of the stomach and bowels, weak lobelia tea, given in sufficient quantities to nauseate a very little, may be administered with considerable advantage. Besides this means for allaying the irritation of the stomach and bowels, and restraining the retching and vomiting so distressing in this form of disease, the cold dash following the vapor bath, will have a decidedly good effect.

Thorough courses of medicine, in the incipient stage of this form of disease, cannot be two strongly recommended. If the steamings are kept up for any length of time the yellow tinge will soon leave the surface, and it will resume its proper color. By this means local congestion will also be obviated by equalizing the circulation.

Diuretics may not be amiss, in this form of disease, at least, if there is any great suppression of urine, they may be administered with much advantage.

It is proper to state where the patient is convalescent, light nourishing food, with tonics and stimulants may be used freely without danger.

In the early stages of this complaint, we shall find quinine a judicious remedy ; every hour or two hours we may administer from two to four grains, and the bowels should be kept open by small portions of Podophyllin and Leptandrin, when the patient is not very much reduced. If he should be very weak let the bowels be relieved by enemas, a portion of which should be Lobelia. The surface of the body should be often sponged with a cold alkaline wash, or when the fever is low, and there is a diminished termina-

tion to the surface, let the whole body be bathed in pepper sauce.

It is proper to state, before leaving the subject of the treatment of yellow fever, that some practitioners, especially in the French West Indies, have been in the habit of relying upon the mildest measures; trusting rather to the resources of the system, aided by the removal of noxious influences, than to any strong remedial impressions. In the first stage, demulcent beverages, chicken water with a little nitre, or other weak ptisans, perhaps composition tea when the excitement is great, a little magnesia now and then, fomentations or poultices to the abdomen, and the warm bath; in the latter stages, preparations of bark, acids, camphor injections, etc., constitute the routine of the treatment; and it has been asserted that the success of the plan is little if at all short of that of the more energetic methods usually employed by the Allopaths.

The prevention of the disease is even more important than its treatment. In relation to individuals, when circumstances prevent their leaving the place in which the disease prevails, they should select a residence in the highest and healthiest spots; should sleep preferably in the highest part of the house; should avoid the night air; should abstain from fatiguing exercise, exposure to alternations of temperature, and excesses of all kinds; should endeavor to maintain a cheerful and confident temper; should use a nutritious and wholesome but not a stimulating diet; and, if compelled to enter any spot in which the atmosphere is known to be infected, should take care not to do so when the stomach is empty, or the body exhausted by perspiration or fatigue. Attempts to guard against the disease by low diet, bleeding and purging, or the use of mercury, are futile, and even worse than futile. The feebler the system, the less is it able to resist the entrance of the poison, or its influence when absorbed.

The public also have important duties in this complaint. Letting alone the vexed question of quarantine, we may insist on the necessity of establishing hospitals in healthy situations, of removing as far as possible all sources of noxious effluvia, of correcting such effluvia where known to exist by fumigations with chlorine, and finally, in our northern cities, where the limits of the infected neighborhoods are often well defined, of removing the inhabitants from within these limits, and excluding the entrance of others by the temporary erection of fences across the streets or avenues. In places where the residents have become exempt from the disease by habitual exposure to the cause, it will be sufficient to remove and exclude strangers and children from the infected districts.

Dr. Comfort's treatment is as follows:

In all cases of disease where the stomach has lost the power to digest food, an important part in the treatment, is to administer such medicines as are best adapted to sustain the function of calorification and innervation, or, as Dr. Thomson terms it, "*the power of inward heat.*" Cayenne is a pure and permanent stimulant, and well adapted to fulfill the important indication above mentioned. It may be administered in full doses every few hours or in similar doses more frequently repeated.

When the tongue is thickly coated, the cayenne should be mixed in a strong tea of bayberry; at least, occasionally it should be given before.

When the stomach continues to reject the medicine, it should be given in small doses. A teaspoonful of purified charcoal, or of prepared chalk, mixed with a dose of cayenne, or composition tea, will remain on the stomach, in many instances, when simple cayenne tea would be rejected. When there is evidence of a great accumulation of acid in the stomach, either the charcoal or prepared chalk will prove beneficial, given freely with other medicines, such as cayenne and bayberry composition, or with simple herb teas; for instance, pennyroyal, dittany, or mint.

Properly applied, the vapor bath is not only safe, but more or less beneficial in all cases of disease. When the patient is too feeble to bear the exertion of sitting up, the bath should be applied on a bed or matress, the patient remaining in a horizontal posture. In this way the application of steam may be continued from three quarters of an hour to an hour at a time, provided a proper attention be observed in bathing the face and breast of the patient with vinegar, spirits or cold water, allowing a free circulation of air in the room, and administering cayenne or composition tea.

"In all cases," observes Dr. Thomson, "where the heat of the body is so far exhausted as not to be rekindled by using the medicine, and chills or stupor attend the patient, then applied heat by steam becomes indispensably necessary."

The most recoveries from diseases of dangerous character that I have witnessed, have been where the vapor bath has been administered frequently; at least daily.

When the patient is able to sit up to have the bath administered, it is a good rule to use the shower bath, at the close of the steaming.

Warm poultices kept applied to the abdomen, are highly beneficial, in many instances.

It matters not whether the disease comes on with great excitement and delirium, or with a state of congestion and oppression, as regards the general course of treatment. The emetic and injections proper in a state of congestion and extreme torpor, are equally applicable where there is great excitement in the system. We have in repeated instances, observed a dose of the third preparation of lobelia, given in bayberry tea, to have great influence in moderating and, in some instances, in overcoming delirium; and on the return of the delirium, by repeating the dose, these symptoms again disappear; in this way, patients have in some instances been kept comparatively calm and quiet, and able occasionally to sleep, who would have been in a state of extreme restlessness and delirium without the medicine.

Much distress will sometimes be produced by the medicine arousing the sensibilities, and exciting the recuperative powers of the system into action. It is more favorable when the medicine causes the patient to feel sensibly his diseased condition, than when he appears unconscious of it.

If warmth applied by means of warm bricks or bottles of hot water be agreeable to the patient, it should not be neglected. A moist heat will, in many instances, render a patient comfortable, when a dry heat will prove oppressive. When there is high fever, bathing the surface with vinegar and water, or alcohol and water, will be soothing to the feelings of the patient, and may be done without any risk of doing injury.

When the head is morbidly hot, cloths wet with cold water, or vinegar and water, should be kept steadily applied, provided it be agreeable to the feelings of the patient. If symptoms of inflammation of the brain prevail, the hair should be cut off, and a warm poultice applied over the scalp. The poultice may be made of slippery elm powder, or Indian mush. Cloths wrung out of warm water, may be substituted for poultices. Injurious consequences are liable to follow the application of ice or blisters to the head, in continued fever.

The importance of employing stimulating injections in all cases of malignant disease cannot be too strongly impressed upon the minds of those who have the management of such cases. Indeed they constitute the most effectual means of preventing putrefaction of the contents of the bowels, and of preventing stagnation of the blood in the bowels. When there is strong tendency to pu-

trefaction, or the abdomen becomes distended from accumulations of gas in the bowels, from one to three teaspoonfuls of the liquid of the third preparation of lobelia, in half a pint of bayberry tea, should be administerd by injection, and repeated every hour or two, as the urgency of the symptoms may demand. In some instances even these powerfully stimulating injections will be retainned until four or five are administered. In a milder form of disease, and in its early stage, injections of a less stimulating character will be sufficient to accompiish the desired object.

VARIOLA—SMALL POX.

Description and Causes.—Small-pox is a disease of a very contagious nature, marked by a fever which is usually inflammatory, but now and then is of a typhoid nature, attended with vomiting, and upon pressure of the epigastrium, with pain; succeeded after a few days by an eruption of red pimples on different parts of the body, which in the course of time suppurate, and scab, which at length fall off, leaving frequently behind them little pits in the skin, and, in severe cases, scars.

With regard to the history of the small-pox, it appears from the researches of eminent writers, that this disease, as also the measles, had prevailed in China and Hindostan from remote antiquity, yet had not extended to the more western nations until the middle of the sixth century. About this period these maladies reached the southern coasts of Arabia, by vessels trading with India, and broke out near Mecca, during the war of the elephant (as it has been termed,) in the year 569, immediately before the birth of Mahomet.

During the latter part of the sixth, and whole of the seventh century, they were spread by the Arabians over the remaining countries of Asia, and all that part of Africa which is washed by the Mediteraanean Sea. In the eighth century Europe was contaminated in consequence of the Saracens invading Spain, Sicily, Italy and France, and the above diseases gradually extended to the north. They had reached Saxony, Switzerland and England, in the ninth or tenth century. And lastly, in the beginning of the sixteenth century, twelve years after the death of Columbus, the infections were transported by the Spaniards to Hispaniola, and

soon afterwards to Mexico, and diffused speedily over that hemisphere also.

The small-pox attacks people of all ages, but the young of both sexes are more liable to it than those who are much advanced in life; and it may prevail at all seasons of the year, but in general it is most prevalent in the spring and summer.

It rarely happens that any person is attacked a second time with the disease, however he may be afterwards exposed to its infection, or even be repeatedly inoculated with variolous matter. A few instances to the contrary have now and then occurred, however, and with a high degree of severity. Affirmations of this from the highest authorities are on record. Dr. Jenner was of opinion that the susceptibility to receive variolous contagion always remains through life, but under various modifications or gradations, from that point where it passes silently through the constitution, up to that where it appears in a confluent state, and with such violence as to destroy life.

The small pox is distinguished into the distinct and confluent; implying, that in the former the eruptions are perfectly separate from each other, and that in the latter they run much into one another. The distinct may often be distinguished from the confluent before the eruption appears, by the mildness of its attack, by the synochal type of the fever, the late appearance of the eruption and the absence of typhoid symptoms.

Some anomalous varieties of small-pox occasionally occur in practice, viz: the crystaline, in which the fluid never becomes opaque or purulent; the vesicular, in which small vesicles appear in the insterstices of the pustules, and some others, but which are all merely different modifications of the same disease.

Both the distinct and confluent small-pox are produced either by breathing air impregnated with the effluvia arising from the bodies of those who labor under the disease, or by the introduction of a small quantity of variolous matter into the habit by inoculation; and it is probable that the variety of the small-pox is not owing to any difference in the contagion, but depends on the state of the person to whom it is applied, or on certain circumstances concurring with the application of it.

Many physicians of eminence are of opinion, that the variolous contagion is limited to a narrow sphere, and that it seldom, if ever, is conveyed by the wind to a distance, as some have imagined it capable of being. Dr. Haygarth, in his Sketch of a Plan to exterminate the casual Small-pox from Great Britain, informs us,

that certain facts appear to exhibit negative proofs that the open air is not contaminated to a great distance from the patient; not to one thousand five hundred feet, nor probably to one-hundreth part of the space. He mentions, that very few cases have been adduced by those who have corresponded with him on the subject, in which clothes exposed to variolous miasma have been even suspected of conveying infection, and that several have given a negative testimony against this mode of communication. He further notices, that innumerable instances are to be produced where medical men, after exposing themselves to the miasms of an infectious chamber, in a very short time nearly approach persons liable to the distemper, who are yet not infected by the interview; and that inoculators are daily in this situation without communicating the casual small-pox. The period during which infection remains latent in the body, he observes, is determined by the testimony of many to be, in the inoculated small-pox, from the fifth day to the sixteenth, seventeeth, and even the twenty-third; in the casual or natural small-pox, a little but not much longer than the common period in inoculation.

A variety of opinions have been entertained respecting the effect of the variolous infection on the fœtus in utero; a sufficient number of instances, however, have been recorded, to ascertain that the disease may be communicated from the mother to the child. In some cases the body of the child at its birth has been covered with pustules, and the nature of the disease has been most satisfactorily ascertained by inoculating with matter taken from these pustules. In other cases there has been no appearance of the disease at the time of the birth, but an eruption and other symptoms of the malady have appeared so early, as to ascertain that the infection must have been received previously to the removal of the child from the uterus. Moreover, some cases reported in the first volume of the Medico-Chirurgical Transactions of London, by Dr. Jenner, point out the obvious infection of the fœtus before birth, and communicated through the mother, she being already secure from any visible occurrence of the disorder—which is indeed a very extraordinary circumstance.

Opinion is not settled as to the period of the disease at which it is contagious; some believing it to be so only after the commencement of suppuration, while others, with greater prudence, consider it as capable of self-propagation, at any period after the first establishment of the fever. It is certain that the body retains the power of imparting the disease after death; according to

Mr. Hawkins, for a period of at least ten or twelve days, even without contact. Some have supposed that the odor is connected with the contagious effluvia; but it certainly is not essential to their activity; for the disease may be propagated from cases in which there is no appreciable smell. The contagious principle attaches itself to clothing, which retains it sometimes for months, and it has been said for years, when confined. But it appears to be easily dissipated in the air, so as to become inert; for the well authenticated instances are very few, in which physicians have conveyed it from one person to another. Attempts have been made to determine the distance from its source at which the volatile poison is capable of acting; but these are necessarily futile, for the distance must vary greatly with the degree of concentration of the poison; and its activity is probably much greater in certain conditions of the atmosphere than others, as, for example, during the prevalence of a variolous epidemic. It is certain that the contagion may extend directly from a single chamber to all the individuals of a large house, and even to those of a neighboring house.

One attack of the disease protects the system, in most cases, against a subsequent attack; and, where it does not afford complete security, very generally modifies the recurrent affection, so as to render it harmless. It cannot, however, be denied that fatal cases of secondary small-pox now and then happen; and instances are related in which the disease has occurred a third time in the same individual. Certain families appear to have an extraordinary susceptibility to the variolous contagion, so that individuals belonging to them are much more liable to returns of the disease than others, and generally also have it more severely.

It is an interesting question, whether any other cause is capable of producing small-pox than its peculiar contagion. It certainly appears often to occur epidemically. After an extraordinary exemption, perhaps for years, a city or district of country is suddenly invaded by it, and continues to be infested for a longer or shorter period, after which the disease again declines, and soon for a time ceases to be heard of. It may thus return yearly, or at irregular but comparatively short intervals, until at length the epidemic influence seems to be exhausted, and a long and almost entire exemption is again enjoyed, interrupted only occasionally by cases arising from obvious contagion.

Diagnosis.—Four different states or stages are to be observed in the small pox—first, the febrile; second, the eruptive; third,

the maturative; and, fourth, that of declination or scabbing, which is usually known by the name of secondary fever.

When the disease has arisen naturally, and is of the distinct kind, the eruption is commonly preceded by a redness in the eyes, soreness in the throat, pains in the head, back and loins, weariness and faintness, alternate fits of chilliness and heat, thirst, nausea, inclination to vomit, and a quick pulse.

In some instances these symptoms prevail in a high degree, and in others they are very moderate and trifling. In young children, startings and convulsions are apt to take place a short time previous to the appearance of the eruption, always giving great alarm to those not conversant with the frequency of the occurrence.

About the third or fourth day from the first seizure, the eruption shows itself in little red spots (similar to flea-bites) on the face, neck, and breast; and these continue to increase in number and size for three or four days longer; at the end of which time they are to be observed dispersed over several parts of the body.

If the pustules are not very numerous, the febrile symptoms will generally go off on the appearance of the eruption, or they will become very moderate. It sometimes happens, that a number of little spots of an erysipelatous nature are interspersed among the pustules; but these generally go in again as soon as the suppuration commences, which is usually about the fifth or sixth day; at which period a small vesicle, containing an almost colorless fluid, may be observed upon the top of each pimple.

Should the pustules be perfectly distinct and separate from each other, the suppuration will probably be completed about the eighth or ninth day, and they will then be filled with a thick yellow matter; but should they run much into each other, it will not be completed till some days later.

When the pustules are very thick and numerous on the face, it is apt about this time to become much swelled, and the eyelids to be closed up; previous to which, there usually arises a hoarseness and difficulty of swallowing, accompanied with a considerable discharge from the mouth of viscid saliva.

About the eleventh day the swelling of the face usually subsides, together with the affection of the fauces, and is succeeded by the same in the hands and feet; after which the pustules break, and discharge their contents, and then becoming dry, they fall off in crusts, leaving the skin which they covered of a brown red color, which appearance continues for many days. In those cases where the pustules are large, and are late in becoming dry and the

scabs falling off, they are very apt to leave pits behind them; but where they are small, suppurate quickly, and are few in number, they neither leave any marks behind them, nor do they occasion much affection of the system.

In the confluent small-pox the fever which precedes the eruption is much more violent than in the distinct, being attended usually with great anxiety, heat, thirst, nausea, vomiting, and a frequent and contracted pulse, and often with coma or delirium.—In infants, convulsive fits are apt to occur, which either prove fatal before any eruption appears, or they usher in a malignant species of the disease.

The eruption usually makes its appearance about the third day, being frequently preceded or attended with a rosy efflorescence, similar to what takes place in the measles; but the fever, although it suffers some slight remission on the coming out of the eruption, does not go off as in the distinct kind; on the contrary, it becomes increased after the fifth or sixth day, and continues considerable throughout the remainder of the disease.

As the eruption advances, the face, being thickly beset with pustules, becomes very much swelled, the eyelids are closed up, so as to deprive the patient of sight, and a gentle salivation ensues, which towards the eleventh day is so viscid, as to be spit up with very great difficulty. In children, a diarrhœa usually attends this stage of the disease instead of a salivation; which is to be met with only in adults.

The vesicles on the top of the pimples are to be perceived sooner in the confluent small pox than in the distinct; but they never rise to an eminence, being usually flatted in; neither do they arrive to a proper suppuration, as the fluid contained in them, instead of becoming yellow, turns to a brown color.

About the tenth or eleventh day the swelling of the face usually subsides, the hands and feet beginning then to puff up and swell; and about the same time the vesicles break, and pour out a liquor that forms into brown or black crusts, which upon falling off leave deep pits behind them that continue for life; and where the pustules have run much into each other, they disfigure and scar the face very considerably.

Sometimes it happens that a putrescency of the fluids takes place at an early period of the disease, and shows itself in livid spots interspersed among the pustules, and by a discharge of blood by urine, stool and from various parts of the body.

In the confluent small pox, the fever, which, perhaps, had suf-

fered some slight remission from the time the eruption made its appearance to that of maturation, is often renewed with considerable violence at this last mentioned period, which is what is called the secondary fever ; and this is the most dangerous stage of the disease.

It has been observed, even among the vulgar, that the small pox is apt to appear immediately before or after the prevalence of the measles. Another curious observation has been made relating to the symptoms of these complaints, namely, that if, while a patient labors under the small pox, he is seized with the measles, the course of the former is generally retarded till the eruption of the measles is finished. The measles appear, for instance, on the second day of the eruption of small pox ; the progress of this ceases till the measles terminate by desquamation, and then it goes on in the usual way. Several cases are, however, recorded in the Medical and Physical Journal, as likewise in the third volume of the Medical Commentaries, in which a concurrence of the small pox and measles took place without the progress of the former being retarded.

The only diagnosis that is necessary is between small pox and chicken pox. In the latter the pustules commonly go back without coming to proper suppuration. Their number, size, appearance and course, differ very essentially. There is great reason to suppose, however, that the one disease is sometimes mistaken for the other, which may account for many of the supposed failures of the vaccine inoculation.

The distinction is sufficiently apparent between the chicken pox and the small pox when each of these diseases appears in its proper colors ; but when the latter is peculiarly mild, and the former extraordinarily violent, which is sometimes the case, then all the discriminating marks are obscured.

The distinct small pox is not attended with danger, except when the eruptive fever is very violent, or when it attacks pregnant women, or approaches nearly in its nature to that of the confluent ; but this last is always accompanied with considerable risk, the degree of which is ever in proportion to the violence of the fever, the number of pustules on the face, and the disposition to putrescency which prevails.

When there is a great tendency this way, the disease usually proves fatal between the eighth and eleventh day ; but in some cases death is protracted till the fourteenth or sixteenth. The confluent small pox, although it may not prove immediately mortal, is very apt to induce various morbid affections.

Both kinds of small pox leave behind them a predisposition to inflammatory complaints, particularly to opthalmia and pneumonia ; and they not unfrequently excite scrofula into action, which might otherwise have lain dormant in the system.

The regular swelling of the hands and feet, upon that of the face subsiding, and its continuance for the due time, may be regarded in a favorable light. Violent eruptive fever, delirium, stupor, severe vomiting, dyspnœa, sudden disappearance of the eruption, subsidence of the swelling of the face or extremities, suppression of saliva, or depression of the pustules, followed by much prostration of strength, pallor of the skin, great anxiety, syncope, or convulsions, are appearances which denote the greatest danger.—The disease in its progress assuming a malignant character and typhoid type, and the pustules becoming livid, or being interspersed with pertechiæ, portend a fatal termination.

The dissections which have been made of confluent small pox, have never discovered any pustules internally on the viscera. From them it also appears, that variolous pustules never attack the cavities of the body, except those to which the air has free access ; as the nose, mouth, trachea, the larger branches of the bronchiæ, and the outermost part of the meatus auditorius. In cases of prolapsus ani, they likewise frequently attack that part of the gut which is exposed to the air. They have usually shown the same morbid appearances inwardly as are met with in typhus gravior, where the disease has been of a very malignant nature. Where the febrile symptoms have run high, and the head has been much affected with coma or delirium, the vessels of the brain appear, on removing the cranium and dura mater, more turgid, and filled with a darker colored blood than usual, and a greater quantity of serous fluid is found, particularly towards the base of the brain. Under similar circumstances the lungs have often a darker appearance, and their moisture is more copious than usual.

When regular small pox has run through its whole course, or has reached an advanced stage, there can be no difficulty whatever in distinguishing it from all other diseases. Its symptoms are quite characteristic. But the same cannot be said of all its stages, nor of all its modifications. The initial fever offers no symptom by which it can be distinguished, with certainty, from other fevers. The most experienced physcians are sometimes deceived. Yet there is, in some cases, a certain aspect which may well induce suspicion. Severe pain in the lumbar region, for example, and excessive irritability of stomach, ascribable to no obvious cause,

would be apt to direct the attention to small pox; and, if the disease were prevalent at the time, would afford highly probable evidence of its variolous nature. Should a papular eruption now occur upon the third or fourth day, with a subsidence of the fever, the proof would be almost conclusive; and should the eruption shortly become vesicular, with an umbilicated summit, it would be quite so.

There may be some difficulty, for a moment, in distinguishing the variolous eruption, at its first appearance, in a confluent case, from that of measles or febrile lichen; but, in the former of these complaints, the eruption is less prominent and distinct to the touch, in the latter, the preceding fever is of much shorter duration. A day or two, however, must remove all difficulty by the further developement of the eruption.

Varioloid, or modified small pox, sometimes offers considerable difficulty in the diagnosis. In relation to those cases in which there is no eruption, there must always be some doubt. So also, perhaps, in those in which the eruption does not advance beyond the papular state; though the duration of fever, and its complete subsidence at the appearance of the eruption, in connexion with a known exposure to variolous contagion, might be considered as almost decisive. Between certain cases of varioloid and varicella, or chicken pox, there is absolutely no observable difference; but, in general, the two complaints may be readily distinguished by the much shorter duration of the eruptive fever in the latter, and by the absence of umbilicated vesicles or pustules.

Treatment.—We cannot better begin the treatment of this form of disease, than by using the language of the venerable professor Curtis; he says:

The small pox virus is doubtless among the most deadly poisonous humors that affect the human system. It should therefore be disengaged as fast as it is formed, that it may have no time to prey upon the vital organs. Much care should be taken to prevent it from returning to these organs after having been once forced to the surface of the body. The indications of cure are,

1st. To raise the internal heat to the healthy state, and maintain it there while a vestige of the disease remains.

2d. To cleanse the stomach and bowels of all offensive matter, and keep the surface *clean, relaxed and warm.*

3. To supply the system with light, nourishing food, in quantities corresponding as nearly as possible with the powers of the digestive organs.

4th. To strengthen these organs and enable them to do their duty.

To fulfil these intentions, provide for the patient a warm room ventilated at the top, at least at the windows.

Raise the heat and steam the patient, washing him *in the bath while the steam is yet around him*, with water, or vinegar and water, nearly or quite blood warm. When well heated all over, (the room still warm) take him out of the bath and wipe him with dry warm flannels, rubbing him till dry, (put no cold water on. Give warm teas to keep up the action, dress him in warm flannel, put him in a warm bed, give him an emetic, and keep him in a kind of breathing sweat (not profuse.) When he gets wet, wipe dry, and change flannel. He may rise, and sit or walk in his warm room; but should not be permitted on any account to expose himself to a cold atmosphere.

Bitters and stimulants should be continued pretty freely till he is entirely well.

Cases of relapse should be treated at first with a severe course of medicine (omitting cold water either internally or externally,) and repeated, if necessary, till a healthy action is produced, which should be maintained as above described.

The general principles of treatment in small-pox, have for a long time, been misunderstood, and measures were consequently adopted, which greatly increased the mortality of this form of disease. Dr. Thomson very justly remarks, that the fashionable mode of treatment, (physician starving, and freezing the patient,) is contrary to common sense, as it weakens the friend and strengthens the enemy. In the distinct small pox, very little is wanting or requisite, more than to assist nature to drive out the virus and putrefaction by keeping the determining powers to the surface, in which case, there will be no danger. A grand principle in the treatment of small pox, as well as in all other exanthemes, or eruptive diseases, is to adopt a fashionable phrase, to guard well the fever. It being the polar-star, we should never lose sight of it, our efforts should be directed to encourage and treat it as a a friend. "It is by means of the fever," says Dr. John Mason Goode, "that the disease works its own cure, for it is hereby that a general determination is made to the surface, and the morbid poison is thrown off from the system." And the same author has declared, that "the fever is the natural mode of cure." Then let the febrile symptoms be encouraged after the following manner: when the symptoms make their appearance, give a dose of compo-

sition powder, and canker teas, cleanse well the stomach, and then the bowels by mild aperients, assisted by injections of raspberry and slippery elm, with a small portion of cayenne. The vapor bath and light emetics must now follow, with some diffusive stimulants. The sage, catnip, pennyroyal, balm, etc., will greatly assist in keeping up a perspiration. As soon as you get a free perspiration, the disorder will soon show itself upon the surface; and by continuing to keep the determining powers to the surface, nature will take a regular course and soon expel the morbific matter and leave the constitution unimpaired.

In confluent small pox, particularly where there is a putrid tendency, the practice should be persevered in until the patient is out of danger. And if the eruptions, after having made their appearance, strike in suddenly, a course of medicine must immediately be given, and repeated if necessary. If the patient is troubled with diarrhœa, it will be necessary to stop it immediately, for it will certainly produce dangerous debility. If the eyes should become much affected, they should be washed and bathed regularly in bayberry tea; if they should not be attended to, blindness may be the consequence.

Light nourishing food may be taken as freely as the patient may want it. Keep the bowels open, the determining powers to the surface, and nature will work the cure.

Attention, throughout the case, should be paid to the diseased surfaces. Lotions of cool water, demulcent liquids, milk and water, or weak ley water, may be applied to the face when much inflamed; purulent matters should be removed from the eyes by frequent washing; children should be prevented from scratching the pustules, which sometimes itch intolerably; moisture exuding from the pustules, or excoriated surfaces, should be absorbed by sprinkling them with rye meal, powdered starch, calamine, or tutty; or, if the parts are inflamed, they should be annointed with cold cream. The nostrils should be cleaned out in infants; and cooling or slightly astringent washes or gargles should be employed for the mouth and fauces. Should a pseudo-membranous exudation be observed in the fauces, it should be treated with a lobelia emetic.

In consequence of the repulsive deformity of face which frequently follows small pox, it has always been an object of interest to find some method of checking the progress of the eruption, and causing it to abort, so as to prevent pits and scars. The Arabian physicians were in the habit of opening the pustules af-

ter suppuration had commenced, of pressing out their liquid contents, and of then washing the surface with warm milk and water, decoction of poppy-heads, etc.; and Rayer speaks favorably of the practice. But a more effectual method is that of cauterizing the pustules with nitrate of silver, as recommended by Bretonneau and Serres. The former cauterized each pustule separately, the latter made the application to masses of the eruption. The best plan is probably to open each pock upon the face, as soon as it has become vesicular, either by a pointed probe or lancet, and then to apply a stick of nitrate of silver brought to a fine point, or a very strong solution by means of a probe. The progress of the eruption is thus frequently completely arrested; and, at the end of a week, the scales fall off without leaving pits. To succeed, however, the operation must be performed as early as the second, or at the furthest the third day. When the solution has been applied uniformly over the large surfaces, it has been found that the work of suppuration and ulceration still goes on beneath the blackened cuticle.

Another method to prevent pitting has been highly recommended by some of our profession. It consists in keeping the light and air as much as possible from the face, this is accomplished by keeping the room quite dark, and a black oiled silk over the face with two or three apertures for the mouth and eyes. Let the face be well oiled with sweet oil or almond oil; the oil should not be allowed to dry on the face and should be applied from the first appearance of the pustules. The patient must on no account scratch the face, and if he should be deranged, his hands must be secured, and he should not be permitted to rub his face against the pillows or bed coverings. The eyes should be washed often with rose water and mucillage of slippery elm, as this prevents them from being injured much by the disease.—The nostrils also must be kept clear by using an oiled camel's hair pencil.

The (Black Cohosh,) Macrotys Rac., has been highly extolled by some authors, and we have no doubt but it is a valuable adjunant to the remedies we have recommended above. It may be given in decoction, in tincture or the powder may be taken in substance. Dose, a tea spoonful of the pulverized root in a cup of hot water or mixed in syrup.

During the continuance of the disease, an occasional vapor bath will prove beneficial, by promoting the secretions and exhalations from the skin. It constitutes the most effectual means for

allaying the itching of the surface, so troublesome and harassing in many cases of the disease. In the latter stage of the eruption, when the scabs are coming off, the vapor bath will be of especial advantage in restoring the skin to a healthy condition, and thereby prove a preventive to the various affections which sometimes follow the disease as a consequence of an unhealthy condition of the skin. While steaming, the patient may be washed or sponged over with soap and water, or with a weak solution of salæratus in water. The temperature of the water should be regulated to suit the feelings of the patient.

A strong decoction of sumac berries and leaves, or of bayberry powder, adding a portion of cayenne, may be given once or twice a day, in ordinary cases, or substituted for the composition and cayenne, and given several times a day. This also forms a useful gargle for the throat, in the latter stages of the disease.

If costiveness prevail, or the patient be affected with diarrhœa, injections must be resorted to. They will prove beneficial in all cases.

The vapor bath efficiently applied, followed by sponging the surface with salæratus water, or tincture of bayberry, constitutes the most effectual means of allaying the itching of the surface.—Salt and water is also useful in allaying itching. When the skin becomes cracked, and the parts swollen and tender, an ointment made of lime water and sweet oil, or a poultice composed of slippery elm, white pond lily and ginger should be applied.

When the disease is of a typhous, or otherwise malignant character, the treatment should consist of such means, both external and internal, as are best adapted to support the prostrate and sunken energies of the constitution, and to assist the stomach to cast off offensive matters, which tend to weaken and oppress its powers. There is, probably, no better form of emetic, in such cases, than the liquid of the third preparation of lobelia, in a strong tea of the sumac or bayberry. A tea-spoonful of the third preparation of lobelia to a tea-cup half full of the above tea, and the dose repeated every hour or two, should be continued until the symptoms become more favorable.

During suppuration, or in the latter period of the disease, the system should be nourished by the most nutritious diet that the stomach can take, such as wine whey, milk porridge, essence of beef, mulled egg, etc. It is not in every case, however, that nourishing food can be taken, except in small quantities; and, under these circumstances, pepper and other stimulants must be given

to sustain vital energy. If the throat be very sore, substances such as jellies and rye mush can be swallowed with less difficulty than thin liquids. Essence of beef and chicken tea will be swallowed more readily by mixing finely powdered elm bark with them. The elm may also be added to the medicines, for the same purpose.

When the eyes are very sore, they should be kept covered with soft cloths, wet frequently with rose water, or raspberry-leaf tea, adding a portion of powdered elm.

VARICELLA—CHICKEN POX.

Description and Causes.—For the last fifty years, authors have been in the habit of drawing their notions concerning varicella from the paper published by Dr. Heberden, in the first volume of the Transactions of the College of Physicians of London. The points of doctrine which he principally set forth were, that the chicken-pox arose from a specific contagion, affected the same individual but once during life, afforded no protection from small-pox, and was capable of being communicated by inoculation. It does not appear, indeed, that he ever witnessed inoculation in this disease; but in his description it is implied that it has been so propagated, although by mistake, and that an eruption followed which has passed with inexperienced and hasty observers, for the small-pox, from which, however, it does not secure the constitution. Dr. Willan, in 1806, bore testimony to the general accuracy of Dr. Heberden's description. He detailed the appearance of the eruption with more precision, but coincided in opinion that it is a contagious disease, affording no protection from small-pox, and communicable by inoculation.

More recent observations have tended to show that some mistake has crept into the views of these authors concerning the pathology of varicella. It has been rendered highly probable that the genuine varicella is not communicable by inoculation; but it has at the same time been shown, that many cases of supposed varicella do produce a disease by inoculation, which is not chicken-pox, but small-pox. Reasoning from these data, some modern authors have retained the notion of the specific disease varicella, but have given it new characters; while others have revived a

doctrine which prevailed very generally in former times, and was distinctly avowed by Sauvages, viz: that chicken-pox and small-pox originate in one and the same contagion, and that varicella is indeed what its name imports, a mild, imperfect, or modified form of variola. In support of the latter opinion, many ingenious arguments have been brought forward in a work which has certainly thrown much light upon the history of the eruptive diseases, connected in their origin or symptoms with variola. The true solution of the difficulties which have encumbered this branch of pathology appears to be this, There are two diseases distinct from each other in their origin and character, both of which have been designated by the title of varicella. The one is the varicella lymphatica, the true or genuine varicella, as described by Mr. Bryce. The other is the varicella varioloides, partaking more decidedly of the nature of small-pox, and from which true small-pox may be obtained by inoculation.

Chicken-pox often occurs in neighborhoods where there is no small-pox, and epidemics of the former disease sometimes occur without a case of the latter. It does not give rise to small-pox in the unprotected, but always to an affection having the same symptoms as the original disease. It occurs with identical characters, and with equal facility in the vaccinated and unvaccinated, in those who have had and those who have not had small-pox; nor does it afford the least protection against small-pox or vaccination. The whole course of its symptoms is different from that of variola. The pock is essentially different from the variolous. It is a superficial vesicle, situated between the true skin and epidermis. without any pseudo membranous product, and without any deep-seated disease of the corium.

Diagnosis.—This is a contagious eruptive disease, in which a a slight fever, of short duration, is followed by vesicles which begin to dry on the fourth or fifth day.

The febrile symptoms usually appear without any observable chill, though in some instances they are ushered in by slight rigors. Along with the heat of the skin, there is often headache, and occasionally vomiting. Not unfrequently the fever is so slight as almost to escape notice, and sometimes it is quite wanting. It continues from a few hours to one or at most two days, and goes off with the occurrence of the eruption. This shows itself usually first on the breast, shoulders and back, whence it spreads to the scalp, face and extremities. The face is less affected relatively than in smallpox. The pocks are sometimes numerous, though usually

few, and almost always quite distinct. They first appear as small bright-red spots, which quickly become vesicular; and sometimes they seem to break out in that form. The eruption is not unfrequently attended with itching or tingling, which causes the child to scratch and rub the vesicles, and thus to break them, when they often appear as small formless red splotches. The unbroken vesicles are generally from the eight to the sixth of an inch in diameter, occasionally somewhat larger, rounded at top, transparent, colorless or slightly yellow, and very delicate, so that they are easily ruptured. Sometimes they occur in successive crops for two or three days, and consequently appear in different stages of advancement. As they mature, they become a little yellowish and somewhat opaque, so as, when at their height, on the fourth or fifth day, to have a pearly aspect. At this time they begin to shrink and dry; and, on the sixth day, small brown crusts appear, which gradually harden, and fall off on the ninth or tenth day, leaving the surface slightly discolored, but not depressed. The last crop is sometimes a day or two later than the first in reaching maturity, and separating. If much irritated, as by scratching or rubbing, the vesicles sometimes become pustular, and then occasionally leave pits. In certain rare cases of what seems to be varicella, umbilicated vesicles appear mingled with the others, and sometimes leave behind them small, round, deep pits.

The only affection with which varicella can be confounded is varioloid, in some of its varieties. Indeed, we have occasionally met with cases during the prevalence of smallpox, in relation to which it was impossible to decide, with certainty, whether they were variolous or varicellous. But generally the distinction between modified smallpox and chickenpox is sufficiently obvious.—In the former, the fever is more severe and longer continued. The eruption is much later in assuming the vesicular character, is often umbilicated, and often more or less pustular. There is, moreover, a greater elevation, and hardening of the surface in the pimple, and at the base of the vesicle, which is much firmer than that of varicella.

Such are the distinguishing characters of *varicella lymphatica*. If the eruption, instead of being vesicular, exhibits to its early stages the appearance of indurated basis—if the vescicles have a central depression—if, after discharging their contents, on the third day, a firm tubercle be found below—and if the crusts which succeed are compact, defined, of a clear horny smoothness, and elevated, the disease was the varicella varioloides, and arose from the

contagion of smallpox. All authors are agreed that the former, or genuine varicella, affords no protection from small-pox. It is generally admitted also that it sometimes spreads epidemically (as in schools ;) and hence some are inclined to attribute it to *specific contagion*. It is not, however, contended by the best authors, that this contagion is communicable by inoculation, or that the disease, affects an individual once only through life. We are not aware that varicella, in this its vesicular or genuine form, has ever been met with in adult persons. It would appear as if the delicate cuticle of infantile life was indispensable to its development.

Treatment.—There is seldom much treatment required in this disease. Give some bland teas to keep up a termination to the surface, and a mild cathartic when the eruption begins to dry up. In the more severe forms or the varioloidous species, the same course should be followed which we have recommended for smallpox.—After the scabs have fallen off, let the warm bath, or the vapor bath be used. We shall also find slight emetics will be indicated in most cases.

The diet should be simple and generally farinacious.

Should the febrile symptoms run high previous to the appearance of the eruption, or after it has shown itself, it may be advisable to give the patient some cooling medicine from time to time; drinking plentifully of herb teas, and keeping the bowels open, if necessary, by some gentle aperient medicine.

After the disappearance of the eruption, one or two doses of any mild purgative may be administered, with an interval of three or four days between each.

RUBEOLA—MEASLES.

Description and Causes.—The measles may prevail at all seasons of the year as an epidemic, but the middle of winter is the time they are usually most prevalent ; and they attack persons of all ages, but children are most liable to them. They prove rather unfavorable to such as are of a plethoric or scrofulous habit. Like the small-pox, when genuine, they rarely affect persons but once, their contagion appearing to be of a specific nature. A recurrence of the measles has been disputed by some, but a number of examples are recorded by different writers where the measles took place twice.

From a number of cases it appears that spurious forms of the disease, insufficient to protect the system from subsequent attacks, occur in a manner very analogous to the spurious appearance of the small-pox and of the variolæ vaccinæ. For many persons, who on former occasions of the measles prevailing, and after exposure to their contagion, had exhibited certain irregular appearance of febrile, catarrhal, and eruptive symptoms, mistaken for the true disease, were afterwards attacked with measles in an exquisitely genuine form. The fact is likewise noticed by Dr. Willan, and he mentions that the rubeola without catarrh appears to be an unusually mild form of the disorder, which does not destroy the susceptibility to an attack in future. Two instances of its recurrence happened among his own children, at an interval of two years. In a later publication he informs us, that he has since seen other cases of the same kind, wherein the efflorescence without fever or catarrhal symptoms having declined, there appeared on the fourth day from its commencement, a new efflorescence, and violent disorder of the constitution.

It can scarcely be doubted that there is one specific cause of measles; or that this is generated in the bodies of those affected with the disease, and is capable of acting upon others through the air. It is, therefore, contagious. Some difference of opinion exists as to the possibility of communicating the disease by inoculation. Numerous trials have been made, many of which have been apparently successful, while others have failed. It is asserted that the disease has been imparted by inserting into the skin blood taken from the eruptive spots, lymph from the small vesicles which sometimes exist, and even the tears and saliva. Though the circumstances that these experiments have generally been made during epidemics, when all not protected are liable to the disease, may throw some doubt upon the subject; yet the cases of asserted success are so numerous and varied, as to make the affirmative of the question greatly preponderate in the balance of probabilities.

Though capable of being propagated by contagion, measles prevails much more at some periods than others; probably under a peculiar epidemic influence. Whether this influence is sufficient of itself to produce the disease, or whether it merely acts by increasing the susceptibility to the contagious principle, may perhaps be considered uncertain. If the fact, quoted by Rayer from an old author, that the disease was not known in the new world until the year 1516, when it was imported from Europe, could be

relied on, it would go far to prove that epidemic influence is alone insufficient; but the testimony can hardly be admitted to have much weight; and the very frequent occurrence of the disease, without any possibility of tracing it to personal communication, would lead to the opposite conclusion. Still there is no impossibility in the production, at once by the human body, and by other unknown agencies in nature, of the same identical poison, whatever that may be. The difficulty would be removed one step by admitting the vital organic character of contagions.

No age is exempt from the disease. It attacks the fœtus in the womb, and old persons in their second childhood. Yet it is much more frequent in children than in adults. One reason of this may be a diminished susceptibility; yet a much stronger one is the fact that most persons have the disease in early life, and can have it but once. There is a very general susceptibility to measles; and there are very few who are not attacked at one period or another of their lives.

Though, as a general rule, measles are capable of being taken but once, instances have undoubtedly occurred, as in all other contagious diseases, in which the same individual has been affected a second time.

The period which intervenes between exposure to the cause, and the occurrence of the disease, is generally thought to be about a week, though it is said to be sometimes considerably shorter, and sometimes as long as two or three weeks. In the inoculations performed by Home, the disease made it appearance upon the sixth day.

Diagnosis.—The disease often commences with feelings of lassitude, chilliness, aching in the limbs, etc., followed by frequent pulse, heat and dryness of skin, loss of appetite, furred tongue, occasionally headache, and all the other phenomena characteristic of fever. But, along with these phenomena, and not unfrequently antecedent to them, are the symptoms of irritation of the mucous membrane of the eyes, nostrils, fauces, larynx, etc., such as profuse discharge of tears and suffusion of the eyes, sneezing and coryza, slight soreness of throat, roughness or huskiness of the voice, a dry, hard, and hoarse cough, and sometimes tightness of the chest and dyspnœa. In some instances there is epistaxis, and in some, epigastric pains, nausea and vomiting. The bowels are usually constipated, but sometimes the reverse. In young children convulsions are not unfrequent, especially during the period of teething. There is every possible grade in the violence of this

early stage. Occasionally it exhibits nothing more than the ordinary symptoms of moderate catarrh, with little or no observable fever, while in other cases the febrile action runs very high, and evidences of severe bronchial or pulmonary disease are presented. The symptoms generally increase in severity for two or three days, then occasionally remit, to return with undiminished if not increased force, upon the breaking out of the rash. If the fauces be examined a little before this event, the soft palate and uvula will often be observed to have a punctuated redness. The eruption generally begins to appear upon the fourth day or at the end of it; though sometimes it considerably anticipates this period, and sometimes is postponed even to a week or ten days from the commencement.

The rash occurs at first in minute, red, distinct spots, very slightly elevated, which disappear under pressure. These show themselves first in the face and neck, then upon the trunk, and finally upon the limbs; and there is often an interval of two days betwen the occurrence of the eruption upon the forehead, cheek, chin, etc., and its completion in the lower extremities. The rash very quickly loses its isolated character, and becomes more or less confluent; arranging itself in irregular clusters, which are occasionally somewhat crescentric, and almost always leave intervening spaces of the skin little if at all affected. It feels slightly rough under the fingers, and though red, has a somewhat darkish tint.—There is, however, great diversity in this respect, the rash being brighter when the fever is high, and usually somewhat more so on the face than elsewhere, probably on account of its great vascularity. In some cases, a more prominent or papular eruption mingles with the rash, in others, minute vesicles are here and there observable. The amount of eruption varies greatly, from a few isolated spots, which are all that show themselves in some cases, to a generally diffused redness which is observable in others. Occasionally, instead of commencing in the face, it attacks first some other portion of the surface, especially if previously irritated or inflamed. In some cases, it does not spread, but confines itself to the circumscribed space in which it first appeared. When at its height, which is usually upon the second or third day of the eruption, it is frequently attended with a troublesome itching and heat of skin. In the fauces, the original punctuated redness now often clusters in irregular patches as on the skin; and red points are often seen projecting above the fur on the tongue.

Neither the catarrhal symptoms, nor the fever, decline on the

appearance of the eruption. Sometimes, indeed, they seem to be increased. The eyes are now frequently red, and the eyelids swollen, as well as, in the greater or less degree, the whole face. But if nausea and vomiting, irregular abdominal pains, convulsions, or other signs of nervous disorder have occurred, they often cease when the rash is fairly out. The cough, though still hoarse, now becomes more loose, and a transparent mucus is expectorated. Dr. Gregory states that the catarrhal symptoms, in perfectly regular measles, begin to abate on the appearance of the eruption; and he has seen the "cough cease instantly as if by magic."

About the eighth day of the disease, or the fourth of the eruption, the rash, fever, and catarrhal symptoms begin to decline together. The decline commences in the face, where the redness is often much faded, while it is still bright upon the limbs. In some cases, however, the whole duration of the eruption does not exceed a day or two, and in others is prolonged to a week or more. The red color gradually gives way to a dirty somewhat yellowish hue; and the cuticle separates in fine furfuraceous scales. But the desquamation is not uniform, being sometimes visible on the face or breast exclusively, sometimes limited only by the extent of the eruption, and, in other instances, wholly wanting. It may continue four or five days before it is completed, and is apt to be attended with itching.

As the fever and eruption decline, the expectorated matter becomes thicker and more opaque; and considerable stress has been laid upon the appearance, which it sometimes assumes, of distinct greenish-yellow pellets, floating, in a flattened form, upon an abundance of glairy mucus, and which is considered as somewhat diagnostic.

Occasionally the pectoral symptoms, instead of diminishing at this stage, which is the regular course, continue and even become aggravated; and auscultation reveals all the signs of an extensive bronchitis, or of circumscribed pneumonia. This is the greatest danger of measles. Instead of bronchial or pulmonary inflammation, a diarrhœa not unfrequently sets in, which, when moderate, may be considered favorable; but is sometimes obstinate and troublesome.

Measles offer numerous diversities besides those already mentioned. The following are most worthy of notice.

1. Owing to internal irritations in different parts, as the stomach, bowels, brain, etc., the eruption is sometimes greatly delayed. Excessive purgation is thought occasionally to have the same ef-

fect ; as also is anything which greatly debilitates the system, such as copious bleeding, some previous vice of constitution, or a malignant action of the cause. Under all these circumstances, there is occasion for solicitude, and the occurrence of the eruption is sought for, either as in itself favorable, or at least of favorable augury.

The same causes which retard the eruption may cause it to retrocede after having appeared ; and a similar effect is ascribed occasionally to the influence of cold. The retrocession is apt to be followed by pains in the bowels, diarrhœa, dyspnœa, coma, convulsions, etc., indicating internal irritations, or by the signs of great prostration. Sometimes the rash returns again spontaneously, with the relief of the alarming symptoms. The retrocession, here alluded to, must not be confounded with that early and altogether favorable disappearance of the rash, which sometimes occurs in slight cases.

A return or exacerbation of the eruption has been noticed, in a few cases, after the period of its normal decline.

It is thought that a rubeolous fever sometimes occurs without eruption ; though there may be difficulty in proving the fact. It is certain that, in the midst of measles, in the same family even in which several individuals may be affected with the regular disease, cases are occasionally seen resembling it precisely in symptoms, course, and duration, with the single exception of the rash. The inference is at least plausible, that the affections have their origin in the same specific cause.

3. Another affection, occasionally seen during rubeolous epidemics, is an eruption having the characters and course of that of genuine measles, but without fever and catarrhal symptoms. This has been called *rubeola spuria*, or *rubeola sine catarrho*.

4. Measles occasionally appear of a *malignant character*. Some cases of this kind may be intermingled with ordinary measles, arising from a depraved state of the constitution, a strong predisposition to the typhus condition, or the accidental conjunction of some powerful depressing cause with the specific cause of measles. But more frequently they are the result of peculiarity in the epidemic influence ; and are exceedingly rare in this country.— The early stage may not materially differ from that of the ordinary disease, unless in a greater frequency and feebleness of pulse, more dyspnœa or epigastric oppression, and a greater tendency to delirium, stupor, or other nervous disorder. But occasionally the prostrating influence of the cause is felt at the outset, and only feeble

and imperfect signs of reaction are witnessed. The eruption is apt to be irregular and partial, appearing, and then disappearing; and the rash is often of a livid, purplish, or blackish color, interspersed with petechiæ, and accompanied with a disposition to passive hemorrhage. The abdominal and cerebral symptoms are those of malignant typhus; and affections of chest, when they occur, assume that condition of intense congestion, with feebleness of inflammatory action, and distressing insufficiency of function which mark the pneumonia of the same disease. When the patient survives the immediate danger from syncope, coma, or asphyxia, he is still liable to be carried off by the exhausting diarrhœa, or obstinate bronchial disease which remains. In consequence of the dark color of the rash, this variety of measles has been called *rubeola nigra* or *black measles* though the same name might be appropriated to cases of the disease occurring in connexion with purpura or scurvy.

5. Measles are liable to numerous complications. Among these, the most frequent and fatal is inflammation of the different organs. Bronchitis and pneumonia have been already mentioned. Enteritis with diarrhœa is not unfrequent. Ophthalmia is common and sometimes severe. Perhaps the most dangerous complication, when it occurs, is pseudo-membranous inflammation of the larynx. Such cases are almost always fatal; but happily they are rare. The same disease existing in the mouth and fauces is sometimes seen. Rubeola is sometimes associated with other eruptive affections. Thus, it occasionally runs a conjoint course with scarlatina, adding to the danger of that disease by directing its pseudo-membranous tendency to the larynx. A fatal case of that kind has occurred to us. It is said sometimes to exist in connexion with small-pox; though these affections probably more frequently have the effect of temporarily superseding each other, one being checked till the other has run its course, and then resuming its own.

In the early stage, measles may be readily mistaken for catarrhal fever, though some writers speak of a hard, dry, loud, and hoarse cough by which it may generally be distinguished. There is almost, however, some uncertainty until the eruption appears; and cases in which no eruption occurs must necessarily be doubtful, especially when the influenza is at the time prevalent, or the changes of weather favor catarrhal affections. The only diseases liable to be confounded with measles, after the occurrence of the eruption, are small-pox, scarlatina, and roseola. In distinct small-

pox, the subsidence of the fever is a sufficient diagnostic sign.—In the confluent, when the fever persists, there may be some doubt at the moment of eruption; but in measles the rash is less observably prominent and hard under the fingers; and the question is very soon decided by the stationary character of the rubeolous eruption, while the variolous is rapidly become vesicular and umbilicated. The diagnosis between measles and scarlet fever will be given under the latter disease. From roseola measles are distinguished by the catarrhal symptoms; but measles without catarrh may be easily mistaken for that complaint; and, in its turn, roseola accidentally associated with catarrh may be mistaken for measles.

Treatment.—In the treatment of measles there is one fact worthy of remark, and that is that the little patient cannot bear exposure of the surface of the body to cold air or even cold bathing, as in scarlatina or even in small pox, and yet the patient must not be kept in too warm a room neither have too much clothing on the bed.

In a great many instances the measles make their attack in so mild a manner, that nature is abundantly able to throw off the disease without medical aid; but in other cases, the most active treatment will be requisite to save the life of the patient. An emetic is always useful in this form of disease, and particularly on its inception, and should be succeeded by some mild aperients; and if the case is of an obstinate character, the vapor bath is indispensable. Our attention should be directed particularly to keeping the skin moist, which can be done by the use of diaphoretic teas, and occasionally the bath.

The bowels should be kept open by aperients and injections, the stomach well cleansed, diaphoretic teas should constantly be used, and in a large majority of severe cases, these alone will be sufficient aid. In formidable cases attended with coughing, difficult, anxious, or laborious respiration, the treatment must be directed accordingly; courses of medicine and our best expectorants must be put in requisition. When the eruption of measles disappears before the proper period, and great anxiety and delirium or convulsions supervene, lobelia emetics should be resorted to without delay, and the best diffusive stimulants.

The retrocession of the eruption, and its retardation, occasionally require attention. Unless unpleasant symptoms should exist at the same time, it is best to leave the case to nature; but, when evidences of internal irritation or inflammation, or of con-

siderable depression, are presented, prompt interference becomes necessary; and the object of the practitioner should be to call the disease to the surface. Among the most effectual measures for the purpose is the vapor bath, which is applicable in almost all cases, whatever may be the pathological condition. If it be inconvenient to administer this, hot and stimulating pediluvia may be substituted. If the retrocession has arisen from exposure to cold, warm drinks should be given in addition, as infusion of balm, chamomile, or the mints; and, if there be at the same time gastro-intestinal or nervous irritation, without any tendency to stupor, and without any considerable bronchial disease, a full emetic has sometimes answered an excellent purpose. Should the fault lie in a debilitated state of the system, from excessive loss of blood, a typhus tendency, or other cause, it may be necessary to administer warm wine-whey, diaphoretics internally, while sinapisms, stimulating frictions, and artificial heat are diligently applied externally. When irritation exists in one of the interior organs, a sinapism, or liniments over the organ will be advisable.

If the bowels are open no laxations will be required, and especial care must be taken lest the bowels are too free. Malignant measles must be treated like other typhous forms of disease, by stimulants and tonics, as we have recommended for these complaints.

There is always great danger of having the lungs affected subsequent to an attack of measles, hence expectorants should always be used, and every tendency to bronchial difficulty should be carefully watched.

There is no disease which leaves the system so susceptible to the morbid influence of cold, as measles. In fact, the effects which frequently ensue as a consequence of measles, are more unpleasant and troublesome than the primary disease.

Coughs, consumption, inflammation of the lungs, scrofula, diseases of the eyes, rheumatism, eruptions about the head, and running from the ears, are not of uncommon occurrence after measles.

The liability to these affections, however, will be greatly lessened when the Reform practice is employed. A vapor bath about the time the eruption disappears, and the skin is peeling off, will tend to restore a healthy action in the skin, and diminish the liability to secondary forms of disease. If the tongue have an unhealthy appearance, and other symptoms which indicate a

disordered stomach and bowels, a full course of medicine should be given, and some stimulants used to keep up a determination to the surface, together with a dose of the bayberry or sumac-tea once a day.

Death seldom occurs from measles under our treatment. Under unfavorable circumstances, however, as when two or three patients are crowded in a small room, badly ventilated; or when it occurs in persons predisposed to consumption, or to scrofula, it occasionally becomes an unmanageable disease.

The treatment for disorders following measles must, of course, be regulated by the condition of the patient: in slight affections giving some simple tonics; and where the symptoms indicate much derangement, vapor baths, injections and emetics may be required, followed by tonics, and such things as are considered good for restoring health; for instance, a strong decoction of pipsissewa, yellow dock-root, and sarsaparilla.

If there be a discharge of offensive matter from the ears, they should be syringed every day with castile soap-suds; then wet a piece of cotton or wool with tar-water, or tincture of myrrh, or Haarlem oil, and put it in the ear, pressing it in so that the liquid may pass into the cavity. A drop of Haarlem oil put into each ear every day, during the first four days of the disease, may prevent running.

During the early stage of measles, and until the patient becomes convalescent, the diet must be light; elm-gruel, crust, coffee, barley-water, etc.

The following infusion should be given as early as possible: Take saffron, two parts; Virginia snake-root, one part; make a tea, sweeten, and give warm; to be repeated, and as much drank as the stomach will bear.

This infusion, with the means recommended above, will lessen the distressing and urgent symptoms attendant on the forming stage, by diminishing excessive inflammation, as well as aiding the expulsion of the eruptions.

If, from debility, cold, or any other cause, the eruptions should only partially appear—or, after their appearance, there should be a recession of them—in addition to these means give *sudorific drops* or *diaphoretic powders*, warm milk punch, etc.; and should not this be sufficient, use the *warm bath.*

When they have made their appearance on the surface, and assume a healthy appearance, very little medicine is necessary. In this complaint the eyes are generally very much affected;

when this is the case they may be washed with the mucilage of *slippery elm bark* and *borax water*.

There are also pulmonary symptoms in measles, which prove very distressing to the patient. When there is difficulty of respiration, from the accumulation of mucus, give a dose of the *expectorant tincture*, sufficient to dislodge it, to be repeated on the return of the symptoms; in addition to which a tea of catnip and hoarhound may be given.

Should the pain of the head be very great, with delirium or convulsions, continue to bathe the feet often, and apply the *mustard paste* to them.

There is usually considerable febrile excitement, restlessness and pain. For these symptoms, as well as to keep up a continual moisture of the skin, give a dose (according to the age of the person) of the *diaphoretic powders* every night at bed-time.

Should nausea or vomiting prevail, let *mint* tea and *bicarbonate of potash* be given.

SCARLATINA—SCARLET FEVER.

Description and Causes.—Most authors describe three varieties of scarlet fever, the simple, the anginose, and the malignant, and each of them so precisely, that the student might very readily be led into the error of supposing them to be equally distinct in nature. But the fact is, that, though cases are not unfrequently observed in which the characters of each variety are tolerably well marked, yet it very often happens that they are blended together, so that it would be quite impossible to determine to which of them a particular case might belong. The disease is essentially the same in all its varieties, and produced by the same cause; and there is no better reason for distributing it into different sections than for treating in the same manner most other febrile diseases.

The cause of scarlatina is probably specific, and is generally believed to be of a contagious nature. This has been doubted by some, and among them by the late Dr. Dewees, who stated that he had never seen "any decided proof that it had communicated itself in any one instance." The circumstance that one member of a family is usually first attacked, and afterwards others, at an interval of several days, is a strong fact in favor of contagion.—

The cause generally operates through the medium of the atmosphere. Whether the disease can be imparted by inoculation may be considered doubtful, though cases are reported in which the trial is said to have been made with success.

Scarlet fever frequently occurs epidemically; and there is this peculiarity in the epidemics, that they are often very limited, being confined to a small district of country, a single city, or even one part of a city. It may, perhaps, be questionable, whether the epidemic influence itself produces the disease, or only favors the action of the specific cause. The former is probably true; for cases occur which cannot be traced to communication with the sick, and in which, indeed, such communication could scarcely have happened; as when the disease first appears in a secluded and perfectly healthy neighborhood.

The epidemic influence differs greatly in its effects in different instances, at one time giving rise to a mild, at another to a violent form of the disease; in some instances imparting to it an inflammatory or sthenic, in others an asthenic or typhous character; and occasionally causing a particular direction of the irritation, sometimes for example, the bowels, sometimes to the air passages, and sometimes with especial violence to the fauces.

Allowing the disease to be contagious, it certainly appears not to be very strongly so; at least there are great numbers who seem to be wholly insusceptible to its cause. In this country, there is scarcely a community in by far the larger proportion of the population does not escape altogether. It not unfrequently happens that only a single individual in a family is affected.

No age is entirely exempt from scarlatina, but children are much more liable to it than adults. Indeed, the susceptibility seems to diminish from the age of ten upwards. Of the adults exposed to the cause few comparatively are attacked; and the instances of the complaint in persons above fifty are very rare.

The disease prevails at all seasons. By some writers it is stated that epidemics of scarlet fever are most frequent in the spring or summer, by others in the autumn or winter; and a fair inference is that they occur about equally in both.

As a general rule the disease occurs but once in the same individual; but exceptions have now and then been noticed, though Willan did not meet with one out of two thousand cases. It is probable that, in many instances in which the same individual is said to have scarlatina twice, one of the attacks was of roseola.

Whether the contagious property is possessed by the disease

throughout its course, or whether only at a particular period, does not appear to have been determined. Some suppose that it is retained by the individual during convalescence, and long afterwards, and that contagion may lurk in fomites for months or years; but these opinions are at least doubtful.

The period of incubation varies from two or three days to two weeks or more. It is probably in general about five days.

Diagnosis.—The rash makes its appearance, in most instances, upon the second day of the fever, often however, earlier or later, and sometimes at the very commencement, so far as can be determined from the statements of the patient or his friends. It occurs usually from the neck, face and breast, whence it gradually spreads over the trunk and extremities, occupying about twenty-four hours in diffusion. Sometimes its course is the reverse of that stated. In the beginning, it is in minute red points, which rapidly coalesce in broad patches, and in the course of a few hours generally form a continuous scarlet blush over large portions of the surface. But great diversity exists, in different cases, both in the amount and arrangement of the eruption. Sometimes it is very scanty, presenting only a few scattered points here and there, or some patches of moderate extent; but much more frequently, it covers, in a greater degree the whole body; being either uniformly diffused over the surface, or exhibiting this uniformity in certain parts, while in others it is punctuated or in patches. The redness is usually diffused equably over the face and neck, and appears with great intensity in the flexures of the joints, as in the groins, armpits, and bend of the knees and elbows. In certain cases, in the midst of the general blush, points of a deeper redness are observable. The color has been compared to that of a boiled lobster; but it is usually of a darker hue. It disappears under pressure, and returns when the pressure is removed. Whatever increases the general excitement has a tendency to deepen it. Hence, the color is most intense during the exacerbations of the fever, and is increased when the patient cries, or is otherwise agitated. The reddened surface is smooth to the finger; the rash being in no degree perceptibly elevated. Sometimes, however, it has a rough feel like that of a goose flesh in certain parts of the body, as the limbs and anterior portion of the trunk, in consequence of the enlargement of the papillæ. The skin itself is often slightly swollen, especially in the face, hands and feet; and the hands are rendered somewhat stiff in their movements. Along with the characteristic rash, may not unfrequently be observed, upon the neck, in the armpit, at the

bend of the elbow, etc., a crop of small milliary vesicles, which make their appearance at different stages of the eruption. Minute pimples and pustules sometimes also mingle with it during its decline. The cutaneous affection is attended with a sense of burning, itching, or other irritation, which is sometimes very annoying to the patient, and interferes with sleep.

The fever does not abate upon the appearance of the rash, but continues with various degrees of violence, throughout its whole progress. The pulse is usually very frequent, much more so than in febrile diseases generally of the same degree of violence.

It is often one hundred and twenty or one hundred and thirty in the minute, and sometimes still more frequent. Occasionally it has considerable force, but this is not its predominant character. The skin is dry and burning hot, and the temperature as indicated by the thermometer, is not unfrequently 105 or 106 degrees of Fahrenheit. The bowels are generally constipated; but sometimes diarrhœa occurs in the advanced stage. Occasionally also, there is irritability of the stomach; but this is not a very frequent symptom.

The affection of the throat, in some cases, never exceeds that already noticed as occurring even before the appearance of the eruption. But very often it becomes the most prominent and distressing symptom, being attended with swelling within and without, painful deglutition, and sometimes impeded respiration. This feature of the disease will be more particularly noticed, in the description of the anginose variety.

The disease attains its height usually from the fifth to the ninth day, when, in favorable cases, all the symptoms begin to decline. The rash fades, the miliary vesicles if present dry up, the heat of skin diminishes, the pulse becomes slower and fuller, the throat affection abates, and the tongue, if it has not previously thrown off its fur, does so now, often, however, remaining for some time reddish, glossy, and with prominent papillæ. Sometimes the amendment is accompanied with a profuse perspiration or a diarrhœa, which may be regarded as critical; but they are very often wanting.

Desquamation generally begins with the decline of the eruption. Sometimes it is furfuraceous, but frequently the cuticle separates in small scales; and, when it is thick, as upon the palms of the hands and soles of the feet, it occasionally comes away in large flakes. We have known the whole cuticle of the palm and fingers to separate, so as to form a complete mould of the inside

of the hand. The process of desquamation is often attended with a very troublesome itching and irritation, and sometimes with much tenderness of the skin. It is usually completed by the end of the second week, though sometimes delayed longer, in consequence of a succession of exfoliations. At this time, if no untoward complication has occurred, the patient may be considered as well, though not yet exempt from liability to unpleasant and even dangerous disease. In many cases of scarlatina, albumen may be detected in the urine a few days after the commencement of desquamation; and, when examined with the microscope, it is found in these cases to be attended invariably, according to Dr. Begbie, with a considerable amount of epithelium of the uriniferous tubules, or other portions of the urinary passages. Of twenty-one cases examined by Dr. Begbie, albumen was detected in all. The quantity was small, and it continued to appear but a few days.

1. *Scarlatina Simplex.*—This is distinguished by the absence of the throat affection. There are only the fever and the rash.—Such is the definition of scarlatina simplex; but the fact is, that complete exemption from inflammation of the fauces is very rare; and a moderate degree of it would not be considered as excluding the case from the present category. Redness and some degree of soreness in the fauces are scarcely less common than the eruption itself.

The simple variety of scarlet fever is often very mild. In some cases the patient is not even confined to bed. The first sign of disease which attracts attention is occasionally a scarlet blush upon the face and neck, which is attended with a slight febrile movement, and declines upon the fifth day, or sooner. But in other cases it is much more severe. There is a universal diffusion of the rash, which is of an intense redness, the heat of skin and frequency of pulse are extreme, and not unfrequently a slight delirium occurs, especially during the exacerbations of the fever at night. But, unless from some intercurrent inflammation, or concealed malignant tendency, or dangerous sequela, there is little risk of life.

2. *Scarlatina Anginosa.*—In this variety the affection of the fauces is prominent. Stiffness of the jaws, soreness of throat, and pain in swallowing are often experienced at the commencement of the attack. The eruption is usually somewhat later in making its appearance than in the simple variety, sometimes occurring on the third instead of the second day. It is also as a general rule, less copious and less diffused. Sometimes it is con-

fined to a particular part, as the hand and forearm. Not unfrequently it is in patches, with intervening portions of the skin, of the natural color. But very many instances also occur, in which the rash is nearly or quite general, and as intense and uniform as in the simple. Occasionally, after partially breaking out, it disappears, perhaps to return again after a longer or shorter interval; and this process is sometimes repeated more than once. The fever is ordinarily more severe than in scarlatina simplex, with a more frequent pulse, and a greater tendency to delirium or stupor.

The inflammation of the fauces advances with the progress of the disease; and not unfrequently the eyes are red and irritated, though not usually watery, as in measles. The patient sometimes sneezes, has a dry cough, and a guttural voice, and hemorrhage sometimes occurs from the nostrils. Upon examination of the fauces, the tonsils, uvula, and soft palate are observed to be swollen and of a deep red color, and patches of a concrete exudation, resembling false membrane, are generally seen upon the surface of the tonsils at an early period. These patches are of a dirty white, yellowish, or ash color, and are sometimes very extensive, covering the surface of the fauces, and spreading into the pharynx as far as it can be seen. They are usually soft, so that they may not unfrequently be scraped off with an instrument. Formerly they were thought to be the surface of ulcers, or gangrenous portions of the mucous membrane; but, when removed, they leave the surface for the most part merely reddened, and without organic change. Sometimes, however, they really do cover ulcerated or eroded surfaces, which may be gangrenous.—Occasionally, they extend into the larynx, producing the symptoms of pseudo-membraneous croup; but this event is very rare. They often impart a very offensive odor to the breath. Along with this interior disease, there is almost always more or less swelling of the external parts, in the region of the parotid and submaxillary glands; and sometimes the tumefaction is very great. It has been supposed that the parotid is the seat of the inflammation; and this may sometimes be the case; but more frequently it is in the neighboring cellular tissue, or the lymphatic glands.—The external swelling is hard and painful, and sometimes prevents the patient from opening his mouth so far as to permit an inspection of the fauces. Deglutition is difficult and painful; and, when attempts are made to swallow liquids, they occasionally return through the nostrils. Sometimes the internal parts are so much swollen as to interfere with respiration. The patient is very much

troubled with a viscid mucus, secreted in the fauces, which he cannot well swallow, and finds it difficult to discharge from the mouth. The lips are often cracked, invested here and there with crusts, and painful when parted. Not unfrequently the mucous membrane of the nostrils partakes of the disease; the nasal passages are closed by the consequent swelling, and the crusts which form upon their surface; and the patient is compelled to breathe exclusively through the mouth, producing dryness of the tongue and lips. At a more advanced stage, a yellow and exceedingly offensive liquid is occasionally discharged from the nostrils, which is sometimes very acrid, and excoriates the orifices. A similar secretion from the fauces is swallowed, and probably conduces to the production of the irritation of stomach and diarrhœa, which are occasional features of the disease towards its close. The discharges from the bowels are also sometimes acrid, so as to excoriate the anus. Occasionally the inflammation travels back through the eustachian tube into the cavity of the tympanum. The tongue is apt to lose its fur at an early period, becoming deep red, smooth and glossy, or somewhat rough with projecting and enlarged papillæ. The incrustations upon the fauces spontaneously separate, or undergo a gradual absorption; and the surface is left red, and sometimes, though not generally, excavated. The fading of the eruption begins a little later than in the simple form; and the fever and sore-throat often continue, in some degree for a few days after the commencement of desquamation. Sometimes, indeed, when there has been much swelling about the neck, recovery is considerably postponed by the suppuration which takes place, and various secondary affections are apt to occur, which protract the disease, and add much to its danger. Occasionally the symptoms assume a typhous character before the close. This variety of the disease is much more apt to prove fatal than the simple; and, when recovery takes place, it is more frequently after a long struggle in the resistance and repair of organic mischief; but still, in by far the larger proportion of cases, the patient does well, and the disease subsides at the regular period.

3. *Scarlatina Maligna—Cynanche Maligna—Malignant Sore Throat.*—The name of malignant scarlet fever is applied to certain cases of extreme violence, in which the system is at once overwhelmed by the force of the disease, or in which the symptoms evince, in the course of it, an extraordinary degree of weakness or depravity. Either the simple or anginose variety may offer this character; the affection of the throat not being essential

to the malignancy of the disease, though this part often suffers greatly.

In some instances, the patient is completely prostrated in the very first stage. Now and then, during the prevalence of scarlet fever, cases are met with in which the patient is attacked at once, either with cómatose symptoms, or with oppression, faintness, and great anxiety; the pulse being slender, feeble, frequent and irregular; the surface either cool, or hot in one part and cold in another; the respiration preternaturally slow, or hurried and irregular; the face pale or livid, and the muscles almost powerless.—Feeble attempts may be made at reaction; febrile heat may be partially developed to disappear again; and even some violent specks may appear as if they were endeavoring to struggle through the skin. But the resistance of the system soon ceases, and the patient dies upon the second or third day. From a less degree of the above symptoms, reaction may take place, and a low fever may be established, with delirium, stupor, or mental inertness, a feeble circulation, a livid, purplish, or dark red eruption, petechiæ or vibices, passive hemorrhage, involuntary alvine discharges, and, unless a favorable change is effected, death in a few days.

In other cases, in which there is greater energy of system, or less violence of the cause, the early symptoms are those of the anginose variety. The signs from which malignancy may be suspected, in such cases, are violent initial pains in the loins and extremities, a greater disposition to delirium or stupor, a somewhat weaker, though not less frequent pulse, a later appearance of the eruption, which is sometimes postponed to the fourth day, its more reluctant or partial efflorescence, and its tendency to a darker hue. In the fauces, also, the tint of the redness is deeper and more inclining to purple than in the sthenic anginose cases. As the disease advances, the symptoms assume a more decidedly typhous or malignant character. The pulse becomes feeble, and the skin less regularly heated; the eruption disappears, or turns of a livid or purplish color; petechiæ and ecchymoses occasionally appear; the pseudo-membraneous exudation in the fauces is of a more dirty or darker hue, and is sometimes almost black; the whole throat is of a deep red, approaching to a mahogany color; true gangrenous eschars and deep ulceration often form, with occasionally considerable destruction of the soft parts; the odor of the breath is fetid; the tongue becomes brown, and, as well as the teeth and lips, incrusted with a dark sordes; blood oozes from fissures in the lips and tongue; the urine is sometimes bloody, and

hemorrhage may take place from any one of the mucous surfaces; an exhausting diarrhœa sets in; gangrenous eschars form on the sacrum, hips, etc., and at length collapse takes place, with sunken features, ghastly expression, a cold, clammy skin, a fluttering pulse, and involuntary stools, ending in death towards the close of the first, or in the course of the second week. Sometimes, however, the patient is conducted through all these untoward symptoms; and then, with a shattered system, has not unfrequently to struggle with exhausting abscesses, ulcers, and alvine discharges, which too frequently carry him off, though he may survive even these, and ultimately be restored to health. It needs scarcely be said, in relation to this variety of scarlatina, that there is in nature every gradation of malignancy, from the slightest infusion of it into an ordinary case of the simple or anginose variety, up to its most deadly concentration in those cases which sink under the first touch of the disease.

It is certain that cases of fever with sore throat sometimes occur during the prevalence of scarlet fever, having all the symptoms, and running the exact course of that disease, whether in its milder or malignant forms, with the single exception, that the eruption is wanting. It is even stated by Willan that such cases are capable of imparting scarlet fever. A singular fact with regard to some of them is, that itching of the skin and desquamation take place at the regular period.

Few diseases leave a longer train of evils behind them than scarlet fever. Among the most common and troublesome sequelæ are the abscesses which form in the vicinity of the parotid and submaxillary glands, and which are often very large and exhausting. Sometimes the copious discharge of pus from these sources is more than the weakened system can bear; and the patient, after having survived scarlet fever, dies of hectic. At the best, they greatly protract convalescence; and the constitution, even after being freed from disease, is long in recovering its wonted strength.

Sometimes an abscess opens into the external meatus, and gives occasion to long continued and exceedingly obstinate discharges of pus from the ear. The same result, with destruction of the bones of the ear, and ulceration of the membrana tympani, sometimes follows an abscess of the cavity of the tympanum.—In other cases, the eustachian tube is closed by union after ulceration, or by inflammatory thickening of its coats, so as to occasion hardness of hearing. Similar disease sometimes affects the

nostrils, and scarlatina not unfrequently lays the foundation for obstinate ozena. Abscesses occasionally also form in the testis, and in the joints.

Diarrhœa is another not unfrequent consequence of scarlatina, which sometimes proves obstinate, and wears out the remaining strength of the patient, though it generally yields to judicious treatment. The stomach sometimes participates in the disease, and the patient passes from scarlatina into a troublesome and dangerous gastro-enteritis.

In females, inflammation of the vagina, with muco-purulent discharge is an occasional attendant and sequela of the disease.

The serous membranes are not unfrequently attacked with inflammation, in the progress of scarlatina, or during its decline; and encephalitis, pleuritis, and peritonitis may be added to its legacies. Bronchial disease is less common after scarlatina than measles, though it occasionally happens.

Pain and swelling of the large joints, closely resembling rheumatism, cramp-like pains in the lower extremities, and stiff neck, are other sequelæ.

But, perhaps, the most serious of all of them is dropsy. The patient is liable to this during desquamation, and for a considerable time afterwards, and the cause of it is by many supposed to be the premature exposure of the delicate skin to cold. It sometimes follows cases in which the skin was but very slightly diseased, and where no exposure to cold can be shown to have existed. It is generally in the form of anasarca, though sometimes of ascites, hydrothorax, hydropericardium, and even hydrocephalus. Heaviness, approaching to stupor, with other signs of cerebral disease, is a not unfrequent attendant on the dropsy of scarlatina. The affection almost always yields to treatment; but is occasionally dangerous when the heart or brain is involved; and is said sometimes to cause death by serous effusion in the submucous cellular tissue of the glottis. The dropsy is generally accompanied with scanty and albuminous urine, and is believed to be dependent on an active congestion or inflammation of the kidneys. It may always be apprehended when, during the desquamative stage of scarlatina, the urine is highly albuminous and much diminished in quantity. A moderate albuminous impregnation, with undiminished secretion, is not to be considered as evincing a disposition to the complaint. The anemic condition of system, which occasionally follows scarlatina, may also occasion dropsical symptoms, in which case the urine may or may not be albuminous.

In the early stage, before the appearance of the eruption, scarlatina may be readily mistaken for many other febrile diseases. The most characteristic symptoms are an extraordinary frequency of pulse, and the appearance of redness in the fauces. After the eruption, one of the complaints with which it may be most easily confounded is measles. From this, however, it may be distinguished by the absence of catarhal symptoms, by the occurrence of the rash on the second instead of the fourth day, by the characteristic anginose affection, and by the peculiarity of the rash, which is of a brighter red color, more punctuated in the beginning and more uniform at last, without the clustered or crescentic arrangement of the rubeolous eruption, and without its roughness. Sometimes the two diseases appear to be mingled in the same case, when both are prevalent. The means of distinguishing scarlatina from roseola and erythema will be mentioned under the two latter diseases.

Treatment.—In every case of Scarlatina where any treatment is necessary (for there are many cases that require nothing but some mild sweating teas) it will be best to begin with an emetic of Lobelia, as there is no remedy so efficacious in bringing the eruption to the surface, and throughout the whole treatment of the disease, the emetic should be used whenever there seems any tendency to intense congestion or the eruption disappears before desquamation begins.

In scarlet fever, as in measles, the vapor bath is indispensable. Notwithstanding the cold effusion which has been so long practiced by the old school is found very grateful to the patient, the vapor bath will be found equally grateful, besides we expect to perform a very considerable part of the cure by passing from the body through the skin, the morbific matter which the fever is evidently endeavoring to throw out. It may in all cases be safely applied when the skin is dry and hot. It cools the surface, abates thirst, diminishes the frequency of the pulse, headache, languor, and disposes to sleep. The bowels must be kept open, by mild laxatives and injections, the determining powers to the surface, and the room well ventilated.

In those cases of scarlatina which show a disposition to malignancy or putrescency, it will be advisable to give courses of medicine followed by stimulating tonics. No. 6, in table-spoonful doses, will be found serviceable.

Throughout the course of the disease, if there is much inflammation or ulceration of the throat it will be proper to make use of

detergent gargles, as recommended under the head of cynanche tonsillaris and maligna, which in young children may be thrown in upon the fauces with a syringe, as they seldom can be prevailed on to gargle. Pepper poultices, stimulating gargles of cayenne pepper, liniments, etc., will be found highly serviceable; this treatment may be employed when the deglutition is very difficult.

Purgative medicines should be carefully avoided, for in every case they induce debility; they may in this form of disease induce diarrhœa, which is apt of itself to occur.

After the fever has subsided in the most of cases, stomach bitters and a nourishing diet, pure air, and gentle exercise, will greatly accelerate the recovery of the patient.

When the urine is very scanty, and especially if a tendency to delirium or coma should be observed, mild diuretics may be resorted to with hope of benefit, such as sweet spirit of nitre, bitartrate of potassa, Eupatorium Pur. (Queen of Meadow).

But the practitioner should always be on the watch for symptoms of debility, and be prepared to counteract them. In some instances, they attend the case from the commencement, in others come on during its course. They are such as occur in the typhous fever. Whenever they are seen, no hesitation should exist in resorting to tonics or stimulants. Sulphate of quinia, or the compound infusion of Peruvian bark, is admirably adapted to many of these cases. But, when the debility is considerable, it is necessary to use stronger stimulants, such as capsicum, oil of turpentine, and wine diluted with water, or in the form of wine-whey. The Germans prescribe the flowers of arnica. When nervous symptoms are superadded, the lobelia or valerian may be employed. Animal broths or jellies should also be given, especially in the advanced stages, and when the blood is depraved. Swelling of the throat, or even comatose or delirious symptoms, should not deter from the use of the above measures, when the signs of debility are evident.

Should the eruption come forth sparingly, or retrocede, and at the same time threatening symptoms appear, efforts should be made to invite it to the surface by the hot bath, emetics, and the more active rubefacients.

For local remedies, especially in the malignant species, nothing excells the Peppersauce for a gargle, and for external use upon the neck the stimulating liniment should be freely used.

In the first stages of scarlet fever the feet must be bathed, and an infusion or tea of saffron freely given; also a tea-spoonful of

the diaphoretic powders, with a tumbler of catnip tea, to be repeated occasionally until moderate perspiration follows. The same dose may afterward be given to keep up a determination to the surface, except the temperature of the body is too great to admit of this stimulating diaphoretic medicine, which is very seldom the case, especially if every excretion of the body has been duly attended to. Should this be the case, however, we must rely on those medicines which produce perspiration without increasing the heat of the body, such as the lobelia pills or tincture, with an infusion of catnip, amaranthus, etc., which may be drank warm, and drank freely through the day. An infusion or tea made of lemon balm or sage may likewise be given as a change ; in general it is sufficient to keep the skin moist.

Cold affusions have been highly extolled by some authors, as well as cold drinks. Cold water may often be applied to the surface with impunity, and often with benefit, even in the different forms of scarlet fever ; but injury may arise from its indiscriminate use. The subsequent effects arising from the repeated and sudden applications of cold to the body, under a great state of excitement, especially in an eruptive disease like scarlatina, may prevent the appearance of the eruption, and cause a recession of them after they have appeared, and thus prove fatal. Bathing the surface with warm rain water, to which has been added a little ley, is far preferable. No dangerous reaction takes place from the use of tepid, as from cold water ; nor will any danger result from it whatever, as it is a most valuable auxilliary, and the use of it cannot be too strongly recommended. We may say with Bateman, when speaking of the application of cold water: "We are possessed of no physical agent, as far as my experience has taught me, by which the functions of the animal economy are controlled with so much certainty, safety, and promptitude, as by the application of cold water to the skin, under the augmented heat of scarlatina and of some other fevers. This expedient combines in itself all the medicinal properties which are indicated in this state of disease, and which we should scarcely expect it to possess, for it is not only the most effectual *febrifuge*, the 'febrifugum magnum,' as a reverend author (Dr. Hancock) long ago called it, but it is, in fact, the only *sodorific* or *anodyne* which will not disappoint the expection of the practitioner under these circumstances. We have had the satisfaction, in numerous instances, of witnessing the immediate improvement of the symptoms and the rapid change in the countenance of the patient, produced by washing the skin.—

Invariably in the course of a few minutes the pulse has been diminished in frequency, the thirst abated, the tongue has become moist, a general free perspiration has broken forth, the skin has become soft and cool, and the eyes have brightened ; and these indications of relief have been speedily followed by a calm and refreshing sleep."

It may be applied as often as the fever increases ; but should be omitted if there is any chill, or if the skin is not above the natural temperature. It may then, however, be applied very warm.

When the throat is sore and the swallowing difficult, which often occurs in the scarlet fever, it must be bathed with the rheumatic liquid—soap liniment is very good—apply warm ; after which bind flannel around the neck. The throat may be gargled, if it can be conveniently done, with the following : Take sage, hyssop, or sumach berries, equal parts ; make a strong tea or decoction, sweeten with honey, add a small piece of borax, and gargle often.

Mustard Plasters, made weak, may be applied.

Our diaphoretic powders are attended with very excellent effects. They tranquilize the system, mitigate pain, procure sleep, lessen the fever by causing perspiration, and will have the desired effect in any and every state or stage of the complaint, particularly after the evacuants recommended have been made. They may be given at night to procure sleep if the patient is very restless.

Whenever there are symptoms of inflammation of the brain present, apply tepid or lukewarm water, or cooling lotions to the head, such as a mixture of water, vinegar and brandy, with frequently bathing the feet and applying sinapism, will do more to allay it than drawing any quantity of blood from the system.

In the early stage of the disease, the tincture or tea of lobelia answers well as a gargle. Capsicum tea or pepper sauce, however, forms the best gargle in the more advanced stages of scarlet fever, and may be used during the whole course of the disease.—Swabbing the throat with the capsicum tea or pepper sauce is still more effectual than the use of gargles, especially if the throat be ulcerated; and in young children who cannot use the gargle, the swab must necessarily be used. This is to be done with a piece of sponge or rag, tied firmly on the end of a stick. Dip the swab in the preparation, and rub over the throat. This is sometimes a difficult operation in children, but the benefit to be derived from it should induce nurses and parents to be persevering in its use. A soft piece of wood placed between the jaws, will enable the nurse to apply the swab more effectually. The child's head should be held firmly at the time.

When clothing is removed from patients affected with a contagious disease, it should be immediately put in cold water, instead of being thrown into a closet or in a corner.

Scarlet fever is liable to be followed by dropsical affections, from exposure to cold, or inaccuracies in diet, before the patient has fully recovered from the primary disease. As long as the tongue remains coated, or does not present a healthy appearance, care should be taken to avoid exposure to cold or dampness; and the diet should be confined to such articles as are easy of digestion.

Where dropsy has ensued, the bath should be administered daily, as above directed, and followed sometimes by an emetic; broken doses of lobelia given either in tincture or pills, together with an occasional dose of composition or pepper-tea, or, if the patient prefer it, the compound lobelia pills. In the early stage of dropsy, the compound lobelia pills may be used in the place of all other remedies; between courses of medicine, and in slight attacks, they may be found sufficient to remove the complaint. When the dropsical symptoms disappear, a strong tea of poplar bark, or of some other tonic, may be employed.

URTICARIA—NETTLE RASH.

Description and Causes.—This disease takes its name from its being attended by an eruption in the skin, similar to what is produced by the stinging of nettles, and terminates in a desquamation of the cuticle. Dr. Willan, in his Treatise on Cutaneous Diseases, notices six varieties of it.

The most frequent causes of urticaria are internal irritations, especially of the stomach and bowels. It often attends dentition, and the bowel complaints of children. Acid and other irritant matters in the stomach frequently occasion it. Certain kinds of food have been long notorious as the occasional cause of nettle-rash. Of these, shell-fish, as lobsters, crabs, shrimps, and especially muscles of different kinds, as most apt to produce it. Salt and smoked fish have been accused by some writers; and it has been supposed that some fish are more poisonous at certain seasons than at others, as, for example, at the time of spawning.—Particular parts of fish have also been supposed to be more noxious than others; and Autenrieth concluded, from his researches, that the irritant principle exists in connexion with the fatty mat-

ter. Other kinds of food, which have been enumerated as occasionally producing urticaria, are pork, mushrooms, oatmeal, bitter almonds, raspberries, strawberries, and green cucumbers. This susceptibility to urticaria from particular kinds of food or medicine is not general, but an idiosyncrasy of individuals; and the food which will produce it in one person will often not produce it in another, each person being liable to be affected by some particular substance.

Over-exercise, strong mental excitement, indulgence in eating rich and high-seasoned food, and the intemperate use of stimulating drinks, sometimes produce attacks of urticaria. It is said to be most prevalent in the spring and summer; yet some authors consider exposure to cold as a more frequent cause of it than heat. This can be readily understood, when it is recollected how much the face and hands of some persons swell and tingle during the reaction which follows exposure to cold.

Peculiar delicacy of skin predisposes to the disease; and some persons who have this character of surface are affected with it from the slightest causes. It is a not unfrequent attendant upon other diseases, especially fevers and febrile complaints; it is one of the forms in which those protean diseases, gout and rheumatism, occasionally show themselves. It is said sometime to have prevailed epidemically.

The disease occurs in all ages, from infancy upwards; but it is most common in infants, and in young persons of the sanguine temperament, and attacks women more frequently than men, probably because their skin is more delicate, and less hardened by exposure.

Diagnosis.—The *acute* form of the disease generally commences with some fever, which precedes the eruption for two or three days, and is often complicated with signs of gastric and nervous disorder, such as headache, nausea and vomiting, pain in the epigastrium, anxiety, languor, faintness, and slight rigors. These symptoms commonly disappear upon the occurrence of the rash, which presents itself usually in the form of erythematous patches of a vivid redness, with wheals rising irregularly in the midst of them. Being attended with excessive itching, it causes the patient to rub or scratch the skin, and thereby very much to increase the eruption, which will often, under this kind of irritation, break out upon apparently sound portions of the surface. It may attack any part of the body, but is generally most abundant upon the inside of the forearm, and about the shoulders, loins, and thighs. It

often also attacks the face, and is said sometimes to appear on the inside of the mouth. The eruption comes and goes irregularly, often declining in the day, and returning in the evening, with slight febrile exacerbation, and coming on with peculiar violence when the patient undresses, and gets into bed. It has been said that the affection of the skin is aggravated by cold, and alleviated by warmth. The reaction produced in the surface after being cooled, no doubt often provokes the eruption. The wheals last sometimes only a few minutes, at other times for several hours; and, on disappearing in one place, often return in another. In some instances they coalesce, giving rise to great tumefaction, tension and irregular hardness of the skin, and almost universal redness. The attack generally lasts a week or ten days, with frequent remissions and exacerbations of the cutaneous affection, and the occasional occurrence, during its course, of various disturbances of system, such as have been mentioned as preceding the eruption. These are sometimes distressing, and even alarming upon a complete retrocession of the rash, and disappear upon its return. At the close of the attack, a slight disquamation of the cuticle usually takes place.

In many instances, the eruption makes its appearance without previous fever. This happens especially when the disease proceeds from something taken into the stomach. In such cases, about an hour or two after the substance has been swallowed, epigastric pain or uneasiness, with nausea, vertigo, anxiety, etc., come on, and are soon followed by the eruption, which is occasionally very violent. The face, neck, and chest, sometimes even the whole surface of the body are much swollen, with an almost universal erythematous redness, interrupted here and there by single or clustered wheals; and the patient along with an intolerable heat, itching, and tingling of the skin, suffers occasionally from oppressed breathing, which almost threatens suffocation.—This violence continues only for a few hours, after which the complaint gradually subsides, and terminates usually in one or two days. In some cases, there is only redness of the skin, without the wheals. In the course of the affection, the patient often experiences severe pain in the stomach, nausea, anxiety, general distress, faintness, etc., alternating with or attending the eruption. The symptoms usually vanish very speedily after the stomach has been completely evacuated by means of an emetic or otherwise.

Occasionally acute urticaria assumes a decidedly intermittent character, occurring in regular paroxysms every day, or every

other day, either as an attendant on intermittent fever, or as an original affection.

In the *chronic form*, there is no fever,, and the eruption is not persistent, but appears and disappears irregularly; being sometimes absent for a considerable interval, and recurring from slight causes, as after violent exercise, or indulgence in the pleasures of the table. The wheals are usually whitish, and less apt than in the acute form to be surrounded by a red efflorescence, though attended with the tingling, itching, and stinging sensations characteristic of the disease. The patient often suffers more or less with the gastric and nervous symptoms before described. The duration of the complaint is very variable and uncertain, sometimes not exceeding a few days, and sometimes extending to months or years.

Occasionally the wheals increase rapidly, and attain a considerable magnitude, forming tumors in the loins, limbs, etc., sometimes as broad as the hand. and interfering with movement. These tumors are sometimes hot, tender, and painful, occur usually at night, and subside after continuing for a few hours, leaving behind them sensations as if the patient had been bruised or fatigued. This form of urticaria is the *U. tuberosa.*

In other cases, the wheals, instead of lasting only a few hours or a day, persist for two or three weeks after the redness has disappeared, retaining more or less of their characteristic sensation, and at length gradually subside. They constitute Willan's *U. persistans.*

It sometimes happens that the sensations bear no just relation to the amount of eruption; and Willan noticed a variety, which he called *U. subcutanea*, in which the patient suffers much from severe stinging pains as if needles were run into the skin, without any visible affection whatever, except an occasional eruption of which continue for two or three days, and then disappear without any relief to the morbid sensations.

Urticaria is often mingled with other eruptive affections, such as erythema, roseola, lichen, and impetigo; and it is not always easy to determine which is the prominent disease. But, when distinct, there is little difficulty in its diagnosis. The peculiar sensations which attend it, and the appearance of the wheals are, in general, sufficiently characteristic. Lichen urticatus, however, might without care be confounded with it, having both wheals, and the itching and tingling of nettle-rash. But the tumors in that complaint are smaller, less prominent, of a deeper color, firm-

er, and much more persistent, and are always attended with true papulæ, which cannot well be mistaken. The tumors of erythema nodosum, though somewhat similar to the large wheals sometimes seen in urticaria, are more durable, and without their disagreeable itching.

The nettle-rash, though a very disagreeable and often troublesome complaint, is scarcely ever dangerous. Cases of death have been recorded, when the disease has arisen from substances taken into the stomach; but it would be difficult to determine how far the result depended on the urticaria alone, and how far on gastric inflammation or other internal disorder produced by the same cause.

Treatment.—Little medical treatment is required in most instances. The avoidence of stimulating and indigestible food and drinks, and of everything especially which may be known to have disagreed with the patient, conjoined with rest and mild aperients, will, in general, be quite sufficient. As excess of acid in the stomach is often the source of the complaint, or at least serves to aggravate it, magnesia may be very properly employed as the laxative, either alone, or combined with one of the saline cathartics. Cool drinks should be given; but lemonade, as recommended by some writers, is of doubtful propriety. When the fever is considerable, an emetic may be used; and it is possible that a cathartic may be requisite. In gouty or rheumatic individuals, the tincture of Phytolacca, (poke root,) in moderate doses, might be added to the other remedies. Should retrocession take place, with severe or alarming internal irritation, the disease should be invited again to the skin by stimulant applications and the bath. In cases of great nervous disturbance, advantage may acrue from Bankston's anodyne, or other nervous stimulants like lobelia.

When the disease proceeds from any article of food, the stomach should be immediately evacuated by an emetic, and the bowels afterwards by a dose of castor oil, or pills, and in severe cases of uncertain origin, it would be proper to employ the same treatment, as the offending cause would very probably be found in the stomach, and the emetic would at any rate have the probable effect of moderating the cutaneous affection.

In chronic cases, which are sometimes very obstinate, Willan advises that the patient should abstain successively from the different kinds of food and drink which he had been in the habit of using, in the hope that the offending cause might thus be found and removed. In this way he had frequently succeeded in tracing

the disease to its source, which, in some, was malt liquors, in others spirit, in others wine, in others, again, vinegar, or fruit, or sugar, or fish, or raw vegetables.

The vapor bath, and a lobelia emetic, will in many instances remove the disease at once. If the first operation fail of effecting a cure, repeat it at proper intervals, until the general health is restored, giving occasionally composition or spice bitters; and cleansing the bowels by using injections, prepared in the usual form.

In milder cases, purified charcoal, taken in composition tea, two or three times a day, together with one or two injections, will be sufficient to rectify the constitutional derangement.

Lime-water is useful in all case sof nettle-rash, as the complaint is always attended with an excess of acid in the stomach and bowels. The dose for a child is from a teaspoonful to a tablespoonful in boiled milk, taken two or three times a day.

The diet should be simple, avoiding all gross food. Where the disease has become seated, let the accustomed diet be changed to other articles of equally nutritious qualities.

In recent cases, the tincture of lobelia, vinegar and water, or alcohol and water, may be applied immediately to the eruption.—In chronic cases, the stronger stimulants should be applied to the swellings as the Number Six, third preparation of lobelia, pepper-sauce, or stimulating liniment, etc. All eruptive diseases of this kind are to be treated on general principles—the grand object to be kept in view, being to correct the constitutional disorder that gives rise to the eruption.

Saffron tea, *crocus sativus*, is said to be an excellent remedy, when drank freely by children.

TABES MESENTERICA—CONSUMPTION OF THE BOWELS.

Description and Causes.—The term *tabes mesenterica*, is employed to designate that species of consumption which depends upon disease of the mesenteric glands. The common idea formerly entertained with respect to this affection, and still, to a great extent, is that the disease first commences in the mucous glands, and from these extends to the lymphatic ganglia of the mesentery, which, in their turn, become enlarged, thickened and less pervious, so that a sufficient share of nutriment cannot be absorbed, the

consequence of which is, that the patient dies of atrophy and exhaustion. With such views of the case, the principles of treatment consisted in employing a class of medicines called deobstruent, the operation of which was supposed to be efficacious in removing this obstruction, this disposition in the substance of the mesenteric glands, and the enlargement by which it was accompanied. This was, and this is, the idea still entertained by many. What is the actual state of the science with respect to this disease? It is found that the glands are certainly changed in their structure and that they are manifestly enlarged; but this is only a link in the chain of phenomena, for it has been proved that in the majority of cases the disease is ushered in by enteritis, and that the swelling of the glands is the result of disease, propagated along the course of the lymphatics from the mucous surface of the intestines to the mesenteric ganglia.

As the predisposition to this disease would appear to lie in scrofulosis or tuberculosis, it would seem, that all those causes, which have been elsewhere pointed out as favoring the development of those conditions, must equally favor the development of scrofulous inflammation of the mesenteric ganglions. It is important, too, to bear in mind the unfavorable influence of a complication with inflammation of the lining membrane of the intestines; and, therefore, to avoid all such unwholesome food, as might derange the gastric and intestinal functions, and thus augment the morbid condition of the ganglions.

The disease has been considered as one of infancy exclusively; but this is not accurate. Tubercular enlargement of the mesenteric glands has been found at all ages, even in the fœtus, and in adults. In one-fourth of those who had died of phthisis, and whose bodies were examined, tubercles were found in the mesenteric ganglions. In one hundred adults, who had died of phthisis pulmonalis, they were found by another observer, ten times; and in the examination of the bodies of one hundred tuberculous children, thirty-one times. At the Hospital des Enfans Malades, of Paris, in tuberculous subjects, from two to fifteen years of age, tubercles were found in the mesentery in one half. From these facts, the disease is evidently more frequent in childhood.

The common opinion is, that girls are more liable to it than boys, but this does not appear to rest upon sufficient statistical evidence. It is true, however, as regards the predisposition of the two sexes to tuberculosis, (*Bayle*, *Lænnec*, *Andral*, *Louis*;) but although it probably applies also to tabes mesenterica, this is not certain.

Diagnosis.—Scrofulous inflammation of the mesenteric ganglions may appear under two forms, which are very distinct. It may be latent, as it were, or be attended by well-marked phenomena. Scrofulous matter may be deposited in the ganglions, and yet there may be no symptom that attracts the attention of the practitioner to them. This has been accounted for, by the assertion, that in such cases the tubercles are crude, and that it is the process of softening, which alone gives occasion to functional disorder. It would not seem, however, that this explanation is satisfactory, inasmuch as mesenteric tubercles have been seen in the most advanced stage of mollescence, without having given occasion to the least indisposition. A young girl, who enjoyed excellent health, fell into the fire, and died a few hours afterwards. On dissection, twelve mesenteric ganglions were found tuberculous, and some of them in a state of suppuration, and many similar cases have been observed by the pathological anatomist.

Perhaps the satisfactory mode of accounting for the inocuousness of this pathological condition is the absence of any inflammatory complications of the intestine or peritoneum, complications which appear, indeed, to give rise to the phenomena that constitute tabes mesenterica.

The writer, just cited, divides the disease into two stages, according as the ganglions can, or cannot, be felt through the parietes of the abdomen.

In the first stage, the main symptoms are: increased size of the abdomen, emaciation, puffiness and paleness of countenance; at times, loss of appetite, but more commonly, great voraciousness and insatiable appetite; vomiting of glairy matter, and uneasiness after having eaten; alternation of constipation and diarrhœa; alvine evacuations of a gray color, resembling clay; and, towards evening, a febrile movement, with dryness of the skin.

It is obvious, however, that none of these symptoms are diagnostic of the disease, and that they may all belong to simple chronic endoenteritis.

In the second stage, the functional phenomena are of more importance. The mesenteric ganglions are now so large that they can be felt through the parietes of the abdomen; giving the feeling of hard, round, knotted or knobbed bodies, seated deeply in the middle portion of the abdomen, and painful when pressed upon. Copious diarrhœa is now a general concomitant; and there is constant fever, with extreme emaciation. Frequently

too, there is œdema of the lower limbs; and, occasionally, accumulation of serum in the cavity of the peritoneum, and even in the chest; under which the patient gradually dies in the last stage of marasmus.

Where the tuberculous masses are very large and hard, they may give occasion to serious inconvenience by pressing upon important organs. Thus, they have been known to obstruct the pylorus and the biliary ducts, the ureters, the vena cava inferior, and the vena porta—in the last case occasioning ascites and anasarca of the lower half of the body.

It is clear, from the above detail of symptoms, that the only pathognomonic symptom of tabes mesenterica is the presence of hard, knobbed tumors, deeply seated about the middle part of the abdomen; yet these may be confounded with scybala in the intestines. Scybala, however, are generally contained in the left iliac region, and they are not painful when pressed upon; whilst the mesenteric tumors are usually seated in the umbilical and right iliac regions. Moreover, scybala are generally accompanied by constipation, while mesenteric ganglionitis is as commonly associated with diarrhœa. If doubts, however, should still exist, they may be dispelled by the administration of a gentle cathartic, which may remove the scybala.

Treatment.—As this disease is evidently scrofulous in its character, it will require the same treatment which we have laid down for that complaint. The bowels should be fomented with bitter herbs, and often well rubbed with stimulating liniments, in the composition of which there should be some of the bitter essential oils, like that of wormwood, tansy, or cedar, etc.

Iodine is recommended, both internally and externally, by all the old authors, but we shall not advise its external use, and we think, even in a liniment that it will not prove so efficacious as the above preparation.

The treatment of this affection is both simple and easy, particularly when the patient applies to you at an early period. In the case of children, one of the first things you have to determine is, whether you shall have recourse to the employment of purgatives or not. If you happen to be called in at an early period, or if the patient has taken no purgatives, and there is reason to suspect a loaded state of the bowels, you will be right in employing some mild laxative. You cannot commence your treatment better than by prescribing some mild opening medicine, particularly when you discover that the patient has been taking indigestible,

improper food. This plan we think both reasonable and useful. You will frequently meet with cases in which all the bad symptoms will disappear after the use of a few laxatives. Here is a point on which the followers of Brousais erred. They declared that the exhibition of a single laxative would be to endanger the patient's life; and that the only treatment which could be relied upon consisted in the use of leeches, low diet and cold water.—But we think there is as much reason in giving a laxative to remove indigestible matter from the bowels in a case of this kind, as there would be in giving an emetic in a case of gastritis, produced by the presence of indigestible matter or corrosive poison in the stomach. But if, after having evacuated the bowels, the symptoms of intestinal irritation should continue, you are not to persist in the use of purgatives; change your hand and attack the symptoms of intestinal inflammation by relaxants and fomentations.

As this disease is so often caused by infantile diarrhœa, the neutralizing mixture will be always indicated in the treatment.

CARCINOMA—CANCER.

Description and Causes.—This dreadful disease has its name from the Greek καρκανωμα, Cancer or Scirrhus.

Cancer, or carcinoma, considered as a genus of disease, comprehends two or three species, which present among themselves very striking differences, and of which the varieties have received a puzzling multiplicity of names; scirrhus, stone cancer, medullary sarcoma, encephaloid or cerebriforma disease, soft cancer, fungus hæmatodes, colloid or gum cancer, and several more. The simplest division, founded upon the consistence of the morbid growth, is into hard and soft cancer. But the most modern and scientific system recognizes three species, viz., scirrhus, encephaloid, or brain-like cancer, and colloid, or gum-like cancer. The physical characters of these three species offer strong points, not merely of difference, but even of contrast.

Scirrhus, as that word implies, is remarkable in its early stages, for its hardness. It is as firm as cartilage, and creaks when divided by a sharp knife. The surfaces exposed by its division present a glistening, satiny appearance, and a white, or gray, or blu-

ish-white color. Athwart this grayish and semi-transparent substance run opaque intersecting bands, having a fibrous aspect.—By strong pressure a thin juice may be made to ooze from a slice of the scirrhous tumor.

Encephaloid cancer is also well named. It is composed, in great measure, of a soft, white, opaque pulpy substance, very closely resembling, both in color and in consistence, that of the healthy brain. This cerebriform pulp is traversed and circumscribed by fibrous septa, which are sometimes extremely thin and delicate.—In both these species of cancerous growth, therefore, there is a contained and a containing element.

The same feature is still more distinctly marked in the third species, the colloid cancer, which exhibits the appearance of small portions of a greenish-yellow transparent gum, or jelly, arranged in regular cells. Hence it is sometimes denominated *alveolar* cancer.

You may ask upon what principle structures so dissimilar in their physical appearance have been assigned to the same genus? Why, for these reasons. They are all strictly destructive or malignant forms of disease. Although in any shape they are of somewhat rare occurrence, yet when they do occur, two, or all three of the species are often found to coexist in different organs of the same individual; nay, in contiguous parts of the same organ. More than this: if a tumor consisting of one species be amputated, and a fresh growth springs (as too often it does) from the same spot, this secondary growth is frequently of another species. There can be no doubt that they are connected by some very intimate bond of union; and the fact we have just stated suggests the question, whether instead of being different species of the same genus, they ought not rather to be regarded as mere varieties of the same species.

Of all three it has been ascertained, by much and fatal experience, that occurring in any one part of the body they are prone to multiply in various other parts; that they are commonly attended, during some part at least of their progress, with very severe pain; that they are incontrollable by any known remedy; and tend always, sometimes slowly, sometimes with frightful rapidity, to augment in bulk; eating away contiguous parts by their invasion and pressure; breaking out, when near the surface, into foul and repulsive ulceration; producing often the most ghastly disfigurement; and ultimately destroying life. Sometimes vital parts are slowly disorganized by the corroding extension of these tumors; sometimes large blood-vessels are laid open, and death is suddenly

brought about by hemorrhage; and sometimes the powers of life sink gradually under the wearing influence of the disease, and that degeneracy of the blood which it causes or accompanies.

There is scarcely an organ or a texture of the body which is not liable to be attacked by this terrible foe; the brain, the eye, the lip and face, the lungs, the stomach, the intestines, the kidneys, the breast, the womb, the testicle, the bones. But some parts are more often the seat of cancer than others. Among these may be reckoned the female mamma, the uterus, the stomach, the liver, and the testicle.

The mode in which cancer originates is uncertain; the modes in which it spreads and multiplies are better understood. An individual tumor may enlarge by the progressive insinuation of the cancerous matter into the interstices of the neighboring tissues, which, thus fastening upon, it consolidates. The disease may be communicated, by imbibition, from one organ to another which is in mere contact with it.

Of the causes of cancer but little positive can be adduced.—"The cytoblestema of cancer, as of all other morbid epigeneses, arises doubtless from the blood, is originally fluid, and identical with aqua sanguinis." The further development of the disease consists in the organization of the cytoblestema, and in its conversion into the cells and fibres already described. We must regard cancer as a thoroughly morbid epigenesis, and as not in the smallest degree produced by a metamorphosis of the tissues between which it is developed. The cancerous matter is formed between original elementary parts of the parent tissue, and occupies, more or less completely, all the interstices.

An attempt has been made to explain the formation of cancer, by supposing that a cancer-cell accidentally getting into the body, gives rise to the development of a tumor of this description. Experiments by B. Langenback, have been cited in proof of this view; it consisted in the production of cancer in an animal by transmitting recent cancer-cells into its organism. But Vogel failed to produce such a result by a similar experiment, which, like others undertaken by Dupuytren, Valentin, etc., with similar negative results, show that cancer-cells lose their capacity for development very shortly after their removal from the body or after death, and render it extremely improbable that cancer can be propagated in this way.

The diseased masses as shown by the microscope, are generally irregular in form; not lobulated; hard, and resisting the knife;

and presenting, when divided, a grayish appearance, which has but very little similarity to cartilage. Whitish bands are not invariably present. Scirrhus of the mammary gland occasionally shows, here and there, whitish filaments ; some of which are hollow, and contain a colorless, whitish, or yellowish matter. Probably this appearance of white filaments, is the result of thickening of the walls of the lactiferous tubes and lymphatics ; and this idea is confirmed by the absence of these filaments from scirrhus of non-glandular parts. The mass of scirrhus is composed of two substances ; the one fibrous, the other gray and granular. The fibrous substance is rarely apparent immediately on making a section of these growths ; but is seen on scraping away the gray matter, for which it serves as a sort of basis. On removing the gray matter, either by scraping it away or by maceration, the fibrous substratum is seen to be composed of a very irregular network of firm bundles of fibres. The gray matter is found to consist of microscopic, formative globules, but slightly adherent to each other, and varying from 0,00048 to 0,09108 or 0,00130 of an English inch in diameter. They are insoluble in ascetic acid, and also in water, at any temperature. In many of these cells, only a few points, which look like small granules, can be seen ; while in others may be distinguished a larger body, which looks like a nucleus, or like a smaller vesicle, contained within a formative globule. Though crowded closely together, the formative globules lie between the meshes of a fibrous structure, with which they have no connection, and from which they be easily removed ; while, notwithstanding the thinness of their walls, they can be isolated from each other with the greatest facility. It is difficult to make out whether the single or double vesicular corpuscule, which is often distinctly seen within the formative globule, corresponds to the nucleus of a cell, or whether it is a young cell encased within the old one. If it be a nucleus, then the small spot upon it would be analogous to the nucleolus, which Schwann usually found on the nucleus of the cells in the fœtus. If, on the other hand, the pale (apparently vesicular) corpuscules be in reality young cellules, then the corpuscules on their surface would correspond to the parietal nucleus from which other cells are devoloped. The paleness and transparency of the vesicular corpuscule which may be contained within the formative globule, does not by any means prove it not to be a nucleus ; for, in the fœtal tissues, the nuclei are sometimes remarkably pale, and even present a vesicular appearance. Probably, however, the vesicular bodies do correspond to young cells; and

the analogy of this structure to that of "cancer alveolaris" is greatly in favor of this supposition. In a case of "carcinoma mammæ," which occurred in a woman aged fifty, the same structure which was observed in the breast, and which there appeared to contain young cellules, showed itself also in small tumors of the ribs. Since many structures in the embryo are originally developed from cells, there exists a general resemblance between the cellular texture of carcinoma, and the primitive state of those tissues. But this is merely a general analogy; for the structure of carcinoma does not resemble one tissue more than another. Professor Valentin, indeed, has observed bodies with central nuclei,—which he considered to be cartilage corpuscules somewhat altered,—in the sanies from a carcinomatous sore of the face, as well as in the diseased mass itself. It is uncertain, however, whether these bodies were real cartilage corpuscules, or whether they might not have been cells of the kind just mentioned. In addition to the formative globules of carcinoma, oil-globules are always seen, in considerable number, diffused through scirrhous growths.

Diagnosis.—The most invariable anatomical character of the carcinomatous degeneration, is loss of the proper tissue of the affected part, which always disappears during the progress of cancer. Vessels, muscles, nerves, glands, bones, and all other tissues, how different soever from each other, become alike involved in the same cancerous degeneration. The first appearance of cancerous degeneration, however, does not consist in the mere transformation of the previously healthy tissues, but the elementary forms of carcinoma become developed between their interstices, and thus displace the natural structure. That this is the case is shown by the way in which the elementary forms of carcinoma are produced. It can easily be proved, that the germinal cells of carcinoma are formed, not from any previously existing fibres, but from a real seminum morbi, which developes itself between the tissues of the affected organ. This is best displayed in the alterations which the muscular coat of the stomach undergoes from "carcinoma alveolare." The germinal cells of carcinoma, are deposited between the bundles of muscular fibre, which, in the early stages of the disease, are easily distinguishable; at even a later period the muscular layer of the stomach, though enormously swollen, may still be recognised, until at length the production of the germinal cells, equally, in all the coats of the stomach, obliterates every trace of their different layers, and of the natural structure of the organ.

The parts in the neighborhood of a cancer, usually become firmly connected with it at an early period, hence carcinoma is less movable than other growths. Carcinoma of the stomach adheres to the pancreas or to the liver, that of the female breast to the skin, or the pectoral muscles. In the female breast the condition of the nipple, and its early retraction are characteristic; though neither that, nor the connection of the scirrhous growth of the pectoral muscles, is invariably met with. Indeed, the authors have often observed carcinomatous growths, in which neither of these occurrences had taken place. The retraction of the nipple, in cancer of the mammary gland, depends on its proximity to the disease. The swelling of the axillary glands, in carcinoma of the breast, and the existence of similar swellings in other neighboring parts are both important. The dilatation of the veins, however, cannot be depended on as a sign of malignancy.

When scirrhus takes place, we see a firm, exceedingly hard, unequal, irregular mass. It is of a light grayish color at first, and if cut into thin slices, is semi-transparent. If a section be examined, a large number of fibres traversing morbid structure in different directions may be seen, between which fibres there is a substance less white than the rest. The deposition constituting tubercles is organic; it is not a new organization, but a new deposition. In scirrhus there is a transformed structure, at any rate; and besides that, there is an inorganic substance, deposited between the fibrous portions. These fibrous portions, running in different directions, form septa—divisions—and are opaque and paler than the others, that is to say, of a more dead white. In fact, the section of a scirrhous tumor is exactly like that of a turnip. In a turnip, we observe fibrous septa, running in different directions, and a softer, less white substance between them. The septa, in scirrhus, run in every direction, and sometimes are seen to form regular cells. The proportion of less hard substance between the fibres, is exceedingly various, and the mode in which the fibres are distributed, is likewise exceedingly various, so that sometimes we have a mammary tumor, sometimes a pancreatic tumor, and sometimes a tubercle—that is to say, a tumor something like a mamma, or something like a pancreas, or something like the tumor of scrofula; a tubercle, in the common acceptation of the word may occur.

The liquid ichor or sanies, which forms the discharge from cancerous sores, is thin, acrid, and generally of a dirty green color; but liable to variation in tint from admixture, in various propor-

tions, with effused blood, or from impregnation with melanotic fluid; as in a case related by Rouzet. It possesses a peculiar and almost characteristic fœtor. It is said by some to effervesce with acids, and turn syrup of violets green; but Ploucquet found, on the contrary, that it exhibited the reactions of an acid. In warm countries, especially, generation of worms not unfrequently occur in this matter. There is nothing, however, peculiar to the cancerous discharge in such development; yet the fact seems to have led to the singular theory respecting the production of cancer by an insect. Valentin states his having discovered nuclear globules and cartilage corpuscules in the "pus of a cancer;" but, according to Muller, such discharge is not peculiar to this affection—occurring on the contrary, from all suppurating surfaces. To the similitude of pus granules, and nuclear epithelium cells, we have already adverted. The surface of the ulcer may participate in the kind of formation displayed by the whole mass; thus Muller has seen the white net-work of reticular carcinoma spreading into the minute asperities on the surface of fungating growths. In encephaloid, consisting of candate corpuscles, the tailed appearance is found in course of development in the most superficial part of new vegetations. The same observer once saw a thick layer of polyhedral chole-steatomatous non-nuclear cells, forming a mass like tallow, on the surface of a cancerous ulcer in the mamma.

Many of the symptoms of uterine cancer are common to other affections of this organ: such as irregular menstruation, leucorrhœa and hemorrhages. Various constitutional or sympathetic disorders are also common to several diseases of this organ.—Weeping of blood between the menstrual epochs, or still more when the catamenia have ceased to appear, mixed with a discharge of vaginal mucus, will excite suspicion, the confirmation of which should be tested by vaginal examination, both by the touch and by the aid of the speculum. If a polypus should be present, it is readily felt as an indolent tumor with its pedicle distinct from the os uteri. Should the tumor be still in the cavity of the uterus, the frequent occurrence of hemorrhages will help to point out its character. By the touch and speculum, both simple and granular ulcerations may be distinguished from the cancerous; the first are superficial, their borders slightly projecting, and their surface red and finely granulated; the cancerous ulcers have elevated, jagged, and indurated edges, and a dark red, or claret colored surface, which is dotted with hard excrescenses, or covered with fungus growth.

Pain is a usual accompaniment of uterine cancer; it is mostly lancinating, sometimes burning. Some patients suffer no pain at all in the uterine region.

Between scirrhous growth and hypertrophy with induration, the diagnosis is more difficult. In the latter the surface is more uniform, often morbidly warm and tender on pressure; while even in the early stages of cancer the surface is irregular and rough, free from tenderness, and there is often a weight, coldness and stony hardness. The mucous membrane covering the cervix is redder, more vascular and sensitive in the former; and of a dull white, or slightly grey color in the latter. The distinct and separate nodules in carcinoma are not met with in chronic metritis, or in hypertrophy of the uterus. Scirrhus is slow in its development; inflammatory engorgement is rapid, frequently reaching a size in six or eight weeks which scirrhus would require as many months to attain.

The diagnosis of cancer in an anatomico-pathological point of view, must rest, in the early stage, before softening has taken place, on the presence of cancer cells. The irregular caudate cells are especially characteristic; so also, are the large cells with many cytoblasts and young cells, the cells with a thick wall, and the accumulation of cells in fibrous capsules. After the softening of a cancerous tumor, which may also occur in tubercular tumors, and in cases of unhealthy malignant suppuration, we must search for the cancer cells, which, as characterised by their form and size, may be readily distinguished from pulse capsules, as well as from the indefinite cellular structure of tubercular swellings.

Encephaloid cancer, as compared with scirrhus, is abundantly furnished with blood-vessels, and upon this difference in their degree of vascularity other remarkable differences between the two varieties seem to depend. First, encephaloid tumors generally augment with much greater rapidity, and attain a much larger size than scirrhous tumors. Occasionally their magnitude comes to be enormous. Again, cerebriform growths seldom happen singly, but occupy several organs of the body at once. Scirrhus, increasing slowly, occurs also in fewer sites; it is sometimes even solitary. More tissues, too, appear to be obnoxious to the soft than to the hard variety.

Now (as Dr. William Budd has well remarked) a large apparatus of blood-vessels, bringing a proportionally plentiful supply of nourishment to the parasitic tumor, accounts sufficiently for its rank and rapid growth; and the same condition, especially when

conjoined with softness of the parent mass, affords obvious facilities for the liberal dissemination of its germs through numerous returning channels. In fact the soft varieties alone have, as yet, been found in the veins.

The same multitude of its blood-vessels, and slender cohesion of its component parts, serve to explain another peculiarity of the cerebriform species. Intermixed with, or diffused through, the brain-like substance, there is often to be seen a quantity of extravasated blood; and when the disease breaks out into ulceration, red, ragged, and bleeding growths, of fungous aspect, sprout rapidly from the open surface. To these accidents of cancer the term fungus hæmatodes is to be traced. We do not find scirrhus to be the seat of similar intestinal hemorrhages.

Encephaloid cancer has less tendency to contract adhesions with contignous parts than scirrhus has.

Of the alveolar variety, which has been more lately discriminated from the others, and less studied, less is known. It occurs principally in the abdomen, affecting the pyloric orifice of the stomach, and the omentum. It appears also, occasionally, in the bones, and the breast and testicle. Although sometimes combined with the two other species in the same person, it is often alone, and limited to a single organ. It has not been met with except in adults.

Treatment.—The moment any kind of tumor makes its appearance, with evident symptoms of cancer, no time should be lost in adopting the most efficient means of restoring a healthy tone to the system if the general health be impaired, and promoting the absorption of the tumor before it breaks forth into an ulcer.

To restore the general health, the common course of medicine ought to be resorted to, and repeated as circumstances require, using between the courses, a tea of pipsisway, wild lettuce, narrow dock root; and probably the sassafras will be useful together with the bitter tonic and the diaphoretic powders. The cancer balsam, recommended by Dr. Thomson, may also be applied externally over the tumor, and renewed as it becomes necessary. The juice of the root of the narrow leafed dock, dried in the sun to the consistency of wax, may also be spread on paper, and applied to the part, and is said to have performed some remarkable cures.

But if, after doing all that has been recommended, the tumor breaks out into an ulcer, or if it be in this state when medical aid is first called, we must not abandon the patient as being in a situ-

ation of utter hopelessness. The course of medicine should be resorted to, together with the use of the bitter tonic, diaphoretic powders, dock root, pipsisway, etc., as being the best means of changing the cancerous habit or tendency of the fluids, and promoting a healthy vigorous action in all parts of the system.

Dr. Thomson remarks, that in one case he applied a poultice of butternut shucks to dissolve the cancerous tumor, and seemed likely to accomplish his object, when his hopes were blasted by the death of his patient in consequence of a fever.

If the ulcer be much inflamed, the common poultice may be applied, wetting it occasionally with cold water or a tea of some of the astringent articles. At each dressing, or renewal of the poultic, wash first with mild soap suds, and then with a tea of pipsisway, wild lettuce, dock root, or some of the astringent articles. When the inflammation has abated, apply the salve, or if the tumor be not dissolved, the cancer balsam will probably be better, which ought to be continued until the cancerous tumor is entirely gone.

An ointment or salve, made by boiling the common wood or sheep sorrel in hogs' lard, has been known to have a very decided influence on cancerous ulcers of the very worst kind. Or the juice dried in the sun, and applied, spread on a piece of bladder or paper, will be more powerful, and is highly recommended.— The juice of the dock root, prepared in the same manner, has also been found beneficial, in numerous cases.

In case a cure of cancer is attempted before it has broken out into an ulcer, it is recommended by some to penetrate the skin to the hard diseased part, by the application of a caustic, made by boiling, for some time, the best wood ashes, or what has been more highly recommended, the ashes of black ash bark; then settle and pour off the clear lye, and boil it down to the consistence of thick tar; to this, it is recommended to add a little spirits in which camphor has been dissolved, or a little honey. This caustic is to be spread on a piece of cloth, of a size proportioned to that of, but less than the cancer, and applied to it. If it becomes too painful it may be taken off for a short time and again replaced; and if necessary the plaster may be renewed.

When a sufficient opening has thus been made, the wood-sorrel salve may be applied, and renewed night and morning until the cancerous tumor can be separated and removed from the sound parts. The application of this salve or plaster causes the cancerous tumor to turn black, and in some instances produces severe

pain. If it becomes too severe, the plaster may be left off at night and in place thereof apply the common healing salve or any other mild application. As a wash, to be used at all times, when the ulcer is dressed, equal parts of prickly ash bark or of zanthoxylon, bayberry, and golden seal, steeped strong, may be advantageously employed.

Few things contribute more to the healing of foul sordid ulcers of any kind, than keeping them thoroughly clean. This ought never to be neglected. The best application for this purpose seems to be the carrot poultice. The root of the common carrot may be grated and moistened with as much water as will bring it to the consistence of a poultice. This must be applied to the sore, and renewed twice a day. It generally cleans the sore, eases the pain, and takes away the disagreeable smell, which are objects of no small importance in such a dreadful disorder. The charcoal and yeast poultice has the same effect. In every species of open cancer, the air should be excluded as much as possible.

No benefit can be expected from any medicine in this disease, unless it be persisted in for a long time. It is of too obstinate a nature to be soon removed, and a radical cure must be brought about by inducing an almost total change of habit which must always be a work of time. From four months to a year, or even more may be requisite to perform a substantial cure; and the patient must make up his mind, as he values his life, to persevere steadily in a course of cleansing medicines till a cure is effected, let it take what time it will. Many discouraging symptoms and unpleasant sensations may arise in the progress of the cure, and they may even appear quite alarming at times, but they generally pass off in a little time, and should not be allowed to impair our confidence in a final cure.

Among the medicines found useful in eradicating cancer, are: yellow dock root, in decoction, for a daily drink; and also applied externally as a poultice. Also poke or coke root, in decoction and poultice. A salve composed of the expressed juice of sorrel, poke leaves or berries, and yellow dock dried away in the sun, has been highly recommended.

A new article, discovered by Dr. Reichenback, of Germany, has been recommended for cancer. The name given to this medicine is *kreosote*, and is extracted from tar and smoke. It is also highly recommended for wounds and sores in general, and in surgical operations as a preventive of inflammation and the most powerful styptic known. Recently it has been said that soot from the chimney was equally valuable as the kreosote.

The following is a very valuable formula for external cancer, where the application can be applied:

R.—Sanguinaria Can., (Bloodroot), - 1-2 ounce.
Cloride Zinci, (Cloride of Zinc.), - 1-2 "
Aqua, (Water), - - - 1 "

Mix with flour and make in paste, and spread upon cotton and applied daily. This plaster will cause the cancer to come out in one mass in from one to three weeks, leaving a flat healthy sore which generally heals with great rapidity.

For incipient cancer the following ointment will be found quite efficacious:

R.—Sulph. Zinci, (Sulphate of Zinc.) - 4 ounces.
Sanguinaria Can. (Bloodroot), - - 2 "
Myrica Cerif, (Bayberry) - - 1 ounce.
Ex. Lactua, (Ex. Lettuce) - - 1 "

Mix with six ounces of Olive Oil, or any other unguent.

Potash has been used with some success by many of our practitioners. It is applied by putting on a plaster of potash for one hour, to be followed by a plaster of tar, and thus alternate till the cancer is destroyed.

RACHITIS—RICKETS.

Description and Causes.—A variety of opinions has been entertained in regard to the pathology of rickets. It was at one period considered to be allied to syphillis. Others have thought it often originates in scurvy, but the closest relationship would appear to be between it and scrofula. That it is a cachexia, or vitiated condition of the solid and fluid constituents of the body, and of the system of nutrition generally, cannot admit of a question. A recent writer thinks there is no proof, that the disease is dependent upon a morbid condition of the fluids, but that it is owing to a general condition of the system, which is but little known.

Although the disease must probably have existed at all times, it does not appear to have been described until the year 1650, when an accurate account was given of it. It is, at the present day, a rare disease in England, although called the "English disease," and is not often met with in this country.

Although children are unquestionably born with a predisposition to rickets, they rarely exhibit any evidence of it, until to-

wards the termination of the first year. At first, the progress of the disease is very slow, and almost imperceptible. Although however, there may be outward appearance of scrofula in the fœtus in utero, it must be imperfectly formed; and if we regard scrofula to consist in an arrest or insufficiency of development, the view would seem to apply *a fortiori* to rickets. A recent writer doubts, whether the constitution of parents has anything to do with the production of the disease, as inattention and neglect are, he conceives, quite sufficient to account for the phenomena. The last remark is true; but we have a little doubt, that much depends upon the condition of the parents, and that the Horatian observation, "fortes creantur fortibus et bonis," is true within certain limits. A recent writer has remarked, that he has often noticed the children of mothers, who had been rickety in their childhood, particularly subject to gastromalacosis at an after period. The connection does not appear to be very close between those diseases, and the remark requires farther observation. It is but fair to presume, that parents, who have singly or together labored under some cachetic vice, may impress their offspring with defective plastic energy; and, therefore, that diseases—like the one now under consideration—may have their foundation laid in this manner.

But although a predisposition may be thus laid in organization, such predisposition, as in similar cases, requires to be excited into action before the mischief can be manifest itself. The most common occasional cause would seem to be—faulty nursing, and all those exciting influences which have been pointed out as productive of scrofulous diseases. The affection is noticed chiefly where children cannot obtain sufficient or appropriate nourishment, and where they are restricted from solar light, and air, in ill ventilated, and often damp apartments. Hence, it prevails chiefly in the lower ranks of life; and amongst the children of those better off in the world, it is seen in those that are compelled to leave the breast, and are fed frequently on a diet unsuitable to their age and condition. The milk of nurses who are addicted to the use of spirituous liquors, would appear to have often induced it, especially where a predisposition, derived from progenitors, existed.

In many of the large manufacturing establishments of Great Britain, the children are proverbially misshapen and unhealthy. When the subject of the health of children in such establishments was brought before the British parliament some years ago, by Sir Robert Peel, Mr. Owen of New Lanark, stated, that although the children, employed in his manufactory, were extremely well

fed, clothed and lodged; looked fresh, and, to a superficial observer, were healthy, yet their limbs were generally deformed; their growth stunted, and they were incapable of making much progress in the first rudiments of education. On the same inquiry, a distinguished surgeon stated, that according to his experience, the result of confinement is not only to stunt the growth, but to produce deformity.

Diagnosis.—One of the earliest symptoms of rickets is an unnatural softness of the flesh, with progressive emaciation, although the appetite may be unimpaired, and sufficient aliment be taken. The countenance becomes sallow; the abdomen protuberant; and the stools are often frequent and unhealthy. If the disease exist during the period of dentition, the progress goes on slowly, and the teeth, as they appear, are manifestly unsound, and soon become loose and carious. But the modified condition of the osseous system is a great characteristic of the affection. Ossification is imperfectly accomplished; the fontanelles and sutures are more open than in strong vigorous children; and the head appears large in proportion to the rest of the body. The sternum is prominent, so that the individual is what is termed "chicken-breasted;" and if an examination be made, it will be found, that this is, in part, owing to a forward deviation of the vertebral column. The extremities of the long bones become spongy, and the joints, consequently, appear swollen. This is usually most marked in the wrists, ankles and knees. As the disease advances, the bones become so soft as to be unable to bear the weight of the body; and for this reason, as well as owing to the action of the muscles inserted into them, they become bent, at times, in various directions. The vertebral column, in which so many efforts centre, suffers especially, and the child becomes humpbacked. The pelvis, too, often suffers, and deformities arise, which, in the female, may give occasion to those difficult cases to the obstetrician, in which delivery cannot be effected by the natural passages.

In the form of endemic rickets—if it may be so called—which occurs at the foot of the Simplon, and is known by the name *Cretinism*—the head is usually so small and misshappen, that the intellectual faculties are incapable of development, and the individual constantly remains idiotic; but, in slighter cases, it not unfrequently happens, that there is unusual mental manifestation in the rickety, and that they astonish by their precocity.

The disease is not a fatal one. In the generality of cases, nutrition improves; and with it, the condition of the whole system.

One great danger is the supervention of serious maladies before the improvement of the constitution has taken place, under which the patient may succumb.

Aneurism and hypertrophy of the right heart are said to be the most frequent results; but statistical knowledge on this subject is utterly insufficient to enable us to state anything positively.

When the distortion of the limbs has not proceeded very far, the cachexia may be gradually got rid of; and, in the progress of childhood, and still more adolescence, there may be little or no appearance of deformity; but in bad cases, and especially if the child passes the first four years of his life without any decided evidences of improvement, he continues a miserable object for life.

Various morbid affections of the internal parts are to be observed on opening the bodies of those who have died of this disease. The brain has commonly been discovered in a flaccid state, with effusions of a serous fluid in its cavities. The lungs have been found in a morbid condition, seemingly from some inflammation that had come on towards the close of the disorder; the spleen and liver are flaccid and enlarged; the intestines are pale or rather whitish; all the lymphatic glands, especially those of the mesentery and bronchia, are enlarged, and the latter sometimes suppurated; the bones, reduced to a fibrous state, are flexible, bent in several directions, and easily cut. With respect to the muscular parts, they have been found very soft and tender, and the whole of the dead body without that degree of rigidity which is so common in almost all others.

Mons. Leveille has paid some attention to the structure of a soft rickety bone, and it is described as having been exceeding light, yielding with facility to the scalpel, and presenting throughout a cellular and spongy texture. Concerning the condition of the bones in the rickets, Bichat remarks, that in this disease the solid structure forming the walls of a long bone entirely disappears; the whole of its interior presents a homogeneous appearance and cellular texture throughout; the periosteum is much thickened.—In some instances the bones in rickets have been observed to be nearly of the consistence of common cartilage; have presented throughout an areolated texture, the cells being in some parts large, and containing a brown gelatinous substance.

Treatment.—The same general mode of management, hygienical as well as therapeutical, must be pursued in rickets as in scrofula. A consideration of the etiology of the disease shows the

great importance of a properly regulated diet and regimen. Without it, indeed, no good can be effected.

Care should be taken in all cases not to exert any improper pressure on the bones, which are flexible and pliant, and may have their shape altered by pressure. "When recovery is taking place," says a recent writer, "and the child is sufficiently old, well-regulated gymnastic exercises will often produce very good effects in expanding the chest, and straightening the limbs and spine; but they should be used very cautiously, and always with due regard to the delicate health, and impaired strength of the patient.—Dupuytren was in the habit of placing a child with deformed chest, with its back against a flat resisting body, and then pressing with the expanded palm of the hand upon the sternum, so as to flatten the thorax from before backwards, and increase the convexity of the ribs from side to side. By repeating this practice from day to day, it is possible to effect much improvement in the shape of the chest; but force sufficient to cause pain should never be employed. All instruments for straightening the limbs or supporting the spine, are worse than useless, as they prevent the action and development of the muscles, which afford the only true means of restoring health and symmetry."

There are certain cases of defective development, which do not belong to rickets, inasmuch as there is no deformity of any organ; but the whole frame is developed on too small a scale, so that the individual does not attain the usual height. It is the opposite condition to that of the redundant development, which gives occasion to the formation of giants. How these modifications in the system of nutrition are produced, it is difficult to say. The impulse to the production of a living being of a definite size is laid in organization. Thus, we see a plant evolved from the seed of the size proper to the species; and in the case of the oviparous animal, the egg of which is removed from all paternal or maternal influence, the size of the animal, when full grown, is equally determinate. Such doubtless, also, is the case in the higher classes of animals, the young of which remain within the mother for a certain period, although subjected to but little influence from her.

Although, however, the impulse seated in the germ is sufficient to account, in many cases, for the defective development of the future individual, circumstances of privation during the period of utero-gestation, and, still more, during the earlier periods of childhood, may stunt the growth as they induce irregularities of devel-

opment in rickets. In the case of rickets, it has been believed, that the influence of the father is more frequent and apparent and, perhaps, the same may be affirmed of the defective development in question. Until the period of puberty, and a few years afterwards, it is difficult to form an opinion as to the degree in which it is likely to exist, but, when once observed, it is important to remove the youth, if possible, from all the circumstances in which he is placed, and to subject him to new impressions of every kind. With this view, travelling, air and exercise, with the concomitant changes of scenery, society, and habits, should be recommended. This may be sufficient to impress new activity on the system of nutrition; but, in too many cases, no means will be of any avail, inasmuch as the defective development implicates the whole frame, and is almost always perhaps dependent upon original conformation, or rather upon an instinctive tendency derived from progenitors.

In the cure of the rickets we should proceed on the plan of invigorating the system by bracing the solids and promoting digestion and the formation of good chyle. For this purpose, we must have recourse to such medicines as possess a tonic power, together with frequent immersion in cold water, the effects of which may be much increased by frictions with flannels, a free, open, and dry air, a generous nutritive diet with wine, and proper exercise by carrying the child in a horizontal posture. An erect one might be apt to increase the deformity.

When the appetite and digestion are in any degree impaired. emetics and the best tonic treatment should be advised. If the vapor baths are given, the cold dash should always follow, as by this we recover the tone of the surface, which may have been relaxed and debilitated by it.

When the rickets are accompanied with mesenteric obstructions, deobstruents, with small doses of bitter-root and cayenne, and repeated frictions on the abdomen, will have a beneficial effect.

In cases of difficult dentition we should resort to the means advised under this head, and in those of worms to vermifuge medicines.

The bed on which a rickety patient lies should consist of a hair mattress or oaten chaff, or it might be made of dried fern leaves, among which some aromatic herbs were mixed. Such beds are better than those made of feathers, for they do not yield to the weight of the body, and they are much drier. If the patient be very young he should be placed on his back, so that the weight of

his body may have as little influence as possible on the bones; but as it is painful to remain constantly in this position, he may be allowed to sit up now and then, but not on a soft chair; he is to be placed on a seat capable of making a uniform resistance, with a high straight back, and without arms. He should not be allowed to walk for a considerable time; at first he will be incapable of doing so without assistance, and the strings and ribands necessary for supporting him contribute, by pressing on the parietes of the thorax, to deform that cavity.

Mr. John Veirac, surgeon at Rotterdam, in his Treatise on the Rickets, which obtained a premium from the Society of Arts and Sciences at Utrecht, asserts, that the acidity of the milk in the stomach of infants is incorporated with the mass of blood, and insinuates itself into the very substance of the bones. We are informed by him, that the blood in these cases after death effervesces with the liquor ammoniæ. The cure he recommends corresponds with this theory, and consists in the exhibition of alkaline medicines.

Mons. Bonhomme, of Paris, in his Memoir on the Nature and Care of Rachitis, advises a similar mode of treatment. According to this gentleman, the disorder arises on the one hand from the development of an acid, approaching in its properties to the vegetable acids, particularly the oxalic; and, on the other, from the defect of phosphoric acid, of which the combination with animal calcareous earth forms the natural basis of the bones, and gives them their solidity. From this opinion he infers, that the proper treatment of rachitis must turn on two principal points, viz: to prevent the development of the oxalic acid, and to re-establish the combination of the phosphoric with the basis of the bones.

These intentions, he thinks, may often be accomplished by the internal use of phosphate of lime and phosphate of soda, and by the external use of alkaline lotions. In this Memoir he relates several cases in which these practices were apparently attended with the best effects. A powder was formed of equal parts of phosphate of lime and phosphate of soda, and taken by infants twice a day to the extent of a scruple for a dose. The alkaline solution was made by dissolving half an ounce of common potass in a pound of very pure spring water. When this solution is to be used, the skin must be rubbed with a dry cloth, or a piece of fine flannel. After this precaution, the diseased parts are to be washed carefully with the warm solution, and at length wiped so

dry as to leave no trace of trace of moisture. This must be repeated at least twice a day.

We are further informed by Monsieur Bonhomme, that he has seen various instances of children cured of their disposition to rachitis merely by washing with the alkaline liquid; but he considers the internal remedies as possessing superior efficacy.

He contends, that the calcareous phosphate taken internally is readily transmitted by the lymphatic passages, and contributes to ossification; and that the internal use of the calcareous phosphate, whether alone or combined with the phosphate of soda, powerfully contributes to restore the natural proportions in the substance of the bones, and thereby accelerates the cure of rachitis.

CHLOROSIS—GREEN SICKNESS.

Description and Causes.—This disease is called from a Greek word χλωρος, *green*, in consequence of one of the most common symptoms, which is a green areola about the eye. It is a disease very common to young women, either about the time they ought to menstruate or soon after they have begun to do so.

The pathology of this disease is quite obscure, and the same remark could be made of every form of disease that implicates a derangement of the absorbent or lymphatic system. We know so little of its functions, and the action, and we might say, of the anatomy of this class of vessels, that every complaint in which they are involved, seems to be shrouded in mystery. Dr. Marshall Hall has well observed on this disease, that there appears not to be a system, an organ, a texture, or even a fluid in the animal economy, which does not suffer in different instances, of this multiform disorder.

There is, in chlorosis, a remarkable state of the capillary system of circulation, both of the vessels and of the fluids. It is this, which gives origin to the exanguinous appearance of the countenance, lips, tongue, gums, and general surface; to the tendency to œdema, and to different species of hemorrhages, especially those of the mucous and the cutaneous surfaces: such as epistaxis, melæna, hæmatemsis, and even purpura; and it is from this circumstance, that the catamenia become almost colorless and aqueous. This state of the system will sometimes progress

till the blood from the nose, or even if taken from the arm, will hardly have the red color, it is almost entirely serum.

It would be difficult to trace the series of causes and effects in the pathology of this affection. The author quoted above, thinks one of the most prominent causes, is in the state of the bowels, that a concurrent cause is in the peculiarity of the constitution, and that an exciting cause is in the inactive and sedentary mode of life, usually obtaining in female youth. The stomach suffers from its continuity with the intestines, the uterus, possibly by contiguous, the head and heart, by remote sympathies. The pain of the side is peculiar, and too common to be a mere accidental complication, and it also probably depends upon the state of the large intestines. The state of the circulating fluids is probably deteriorated from defective digestions and assimilation; and this deteriorated condition of the blood, probably becomes a cause in its term of impaired vital energy; the heart and the brain being imperfectly stimulated.

This disorder has sometimes been mistaken for organic disease, but its character is so distinct, that a close observer need not make a mistake. The state of the complexion, especially when it assumes the icterode hue, may lead us to suppose the liver is the chief cause of the difficulty, but by a careful examination of the state of the lips, of the tunica conjunctiva, of the urine, and of the fæces, with the region of the liver, we shall see that the primary difficulty is not in that organ.

Checked perspiration is a remote cause of this disease. It may arise from a weakness in the uterine vessels, which are prevented from carrying off the menstrual discharge; this is often produced by cold, taken during this period.

Some have referred this disease to a certain state of the ovaries, between which and the uterine vessels there is a seeming connection. Others have contended that the leading symptoms may be readily explained by a refence to the state of the primæ viæ. Costiveness always precedes and accompanies the other symptoms; this induces the feculent odor of the breath, disordered stomach, depraved appetite, and impaired digestion, which precludes a sufficient supply of nourishment at a period of growth when it is most wanted.

Dissections of those who have died of chlorosis, have usually shown the ovaria tobe in a scirrhous or dropsical state. In some cases, the liver, spleen, and mesenteric glands, have likewise been found in a diseased condition.

Diagnosis.—We found our diagnosis of this disease upon the appearance of the countenance; the multitude and variety of the other symptoms—the variable history of the case, perhaps the suddenness and repetition of the attack, and the effects of the remedies. The only difficulty is, when some topical inflammation comes on in a patient previously affected with chlorosis.—Even in this case, this disease assumes a more settled and definite form, instead of the varying and complicated character of chlorosis, and may then be distinguished by a careful examination.

The cough and dyspnœa, the palpitation of the heart, the pain in the side, and the pain and tenderness of the abdomen are to be distinguished from inflammation within the chest or abdomen, by comparing the general and local characteristics of chlorosis with those of inflammation.

The pains of the side, or of the abdomen, so apt to occur as complications of chlorosis, are to be distinguished from pleurisy or peritonitis, by the same recurrence to the state of the complexion, tongue and general surface, to the other symptoms, and by their peculiar character. These pains, for instance, are less constant than those of an inflammatory nature, especially on repeating the inspiration a third or fourth time. The accession of pain in chlorosis is apt to be sudden; the side affected is sometimes changed—the degree of pain is sometimes extremely severe, at others, less so. It is well to note, that we have in this disease, most of the symptoms of anæmia, but where the uterus is implicated, we give this name to this state of the system.

There is a paleness of the skin, absence of the natural red color of the lips; there is a swelling of the eye-lids, a soft and flabby state of the surface, a general coldness of the symptom, a tendency to a swelling of the feet and ankles, loss of appetite and torpor of the bowels. The tongue is pale and more or less furred. In most cases there is little or no menstrual discharge, and a craving for sour and other uncommon things. Palpitations are quite common and pains in the back, loins and hips. Some patients will be troubled much with acid in the stomach, costiveness, the eyes encircled by a livid or greenish areola. The breathing is much hurried by any exertion of the body, the pulse is quick and small. Where there is cough, which is quite common, we may think the patient is in the last stages of phthisis; when the lungs are very little affected, Hysteria is a frequent symptom. As the disease advances, the skin becomes yellow, or sallow, and there is a peculiar greenness about and under the eyes which has

given name to the disease. Languor, lassitude, and even serious weakness, are symptoms seen in most cases. There is severe pain in the side and head, faintness and a sense of suffocation. At one time there will be diarrhœa, and at another the stools will be dark, fœtid and scanty. Hæmoptisis is a frequent symptom, and the blood is seen to be in a very impoverished condition. Digestion is always impaired.

There may be said to be three stages in this complaint, viz: the incipient, the confirmed and the inveterate. The first is more particularly characterized by paleness of the complexion, an exsanguinous state of the lips, slight tumidity of the countenance, and puffiness of the eyelids, especially the upper one. Along with this marked state of the countenance there is sometimes a slight tinge of green, or yellow, or of slate color. In the confirmed stages of chlorosis, the state of palor of the complexion is still more marked, and the tongue, as well as the lips, is exsanguious, and with a slight lilac hue in the upper lip. There is usually tumidity of the integuments in general, and of the eyelids in particular. In the inveterate, or last stage, this state of the countenance is apt to be modified by a degree of loss of flesh on the one hand, and by increased œdema on the other.

The patient in chlorosis, is languid, listless, sedentary, indisposed to exertion, easily overcome by exercise, nervous, low-spirited, and frequently a prey to singularities of temper. There is generally severe recurrent headache or vertigo; sometimes heaviness of sleep, and sometimes an impaired state of the memory, and the faculty of attention.

In the inveterate stage of the disorder, the symptoms assume a modified but still more aggravated character. There is a very slow but progressive loss of flesh; the languor assumes the form of permanent debility; the œdema increases, and assumes the aggravated character of anasarca, the pulse becomes more frequent, and there is altogether less of the character of functional derangement, and more of that of disease. The local complications become more permanent, and are renewed by the slightest causes. Various other symptoms prevail in bad cases, such as lock-jaw, clinched hand, contracted foot, twisted limbs, palpitation, or other forms of dispnœa, fits of coughing, hiccup, retention of urine, etc.

Treatment.—We must first warm the system by pure stimulating and by external heat. Among the best tonics, we shall find iron to hold a high place; and perhaps the carbonate and sulphate

are the best forms to administer it. There are but few cases where the lactate should be preferred.

Our great object is to fill the vessels with pure, healthy blood, hence we should recommend a generous diet, apportioned to the powers of her digestive apparatus, and to assist these powers we shall find a pill of cayenne taken one half hour before each meal, will be very beneficial; the quantity of cayenne taken, should be increased or diminished according to the effect produced; a warmth of the stomach and slight gnawing are desirable to be felt by the patient. This will entirely supercede the porter and other alcoholic preparations, which are generally recommended by our Old School authors for this disease.

The cold shower bath, where the patient is vigorous enough to react under it, may be used every day, or on alternate days.—The vapor bath is also particularly useful especially in the primary treatment as it assists very much in getting up a healthy action in the skin, and giving life and activity to the absorbents and exhalents, and thereby purifying the blood. Enemas are also indicated especially medicated with emenagogue teas, such as the Pennyroyal, Hœdeoma Pugil, (Rattle Root,) Macrotrys Rac. or any other articles that are of this character. In case of menstrual retention, bitter herb fomentations to the pubic region, and diaphoretic teas freely administered, will assist nature at the period of the discharge.

For obstruction in the catamenia, we have never used an article that seemed so near a specific as the Mac. Rac. (Rattle Root.) A teaspoonful of the powdered root in a cup of hot water, given in three doses, with an interval of fifteen or twenty minutes, will be very sure to do all that any emanagogue will accomplish. Next to the iron, our Female Restorative Bitters, made by putting the (Unicorn) Helonias Di, and (Mac. Rac. Rattle Root,) with an equal quantity of the Spice Bitters will be found valuable.

Diuretics are sometimes indicated. The feet should be kept warm and dry

Matrimony, in some cases has been recommended and proved to be followed with the happiest results. We may remember then, that this disease is no medical objection to matrimony.

Where costiveness is attendant on this affection, an active cathartic pill, a part of which is aloes, will be found to act very beneficially in bringing on the *accustomed regularity*.

The following plan of treatment has proved very successful in the practice of one member of the Faculty. It is given as follows :—

In treating a case of chlorosis, it will at once be evident that the *general* plan of treatment should be adopted. Thorough courses of medicines, or part courses, in which is comprised the Lobelia emetic should be given, and repeated two or three times a week, followed by a mild cathartic of Thomson's or Bunnell's Pills, into which an additional proportion of aloes should be added. Then as an alterative stimulating, and emenagogue tonics, a preparation composed as follows, may be given in tablespoonful doses three times daily before meals: Blood Root, Unicorn, White Ash, Prickly Ash, Seneca Snake Root, Black Cohosh, Gum Myrrh, Gum Guiac, Carbonate of Iron or Steel dust, Golden Seal and Bitter Root, each one ounce, cloves or cinnamon, half an ounce, cayenne, a sixteenth of an ounce, all tinctured in a gallon of good wine or spirits, and a half-pint of essence Pennyroyal added. Or the same articles powdered and mixed with an equal part of pulverized sugar, and may be given in teaspoonful doses in water three times a day, as may be preferred.

In these cases much benefit may be derived from the use of the warm hip or sitz bath, with a view to such relaxation as may be necessary to promote a healthy catamenial flow.

Though it might be possible in particular instances, to effect the object aimed at with less trouble, and perhaps, by the use of isolated articles, it is yet considered that when certainty and despatch are the main objects aimed at, the preceding course will leave little to be desired.

Dr. N. H. Campbell of Georgia, writes as follows, concerning the macrotris :

I rely upon the Macrotin, so strongly, for all Catamenial derangements, that I have used no other preparation for it, for several years. I saw in some Botanic work that there was no specific for obstructed menstruation. But if this had been asserted by the most talented Botanic, I should have to differ with him, because I have tested its virtues in the most inveterate diseases, to which the female is subject. Doses, four to six grains, repeated every four hours, assisted by warm tea.

HYPOCHONDRIA—HYPOCRONDRIAC AFFECTION.

Description and Causes.—This disease, known likewise by low spirits, or the vapors, is a certain state of the mind along with dyspepsia, wherein the greatest evils are apprehended upon the slightest grounds, and the worst consequences imagined from any unusual feeling even of a trifling kind; and in respect to such apprehensions and feelings, there is always the most obstinate belief and persuasion.

Hypochondriasis bears a strong resemblance to dyspepsia; but there is this difference between them, that the former prevails at an advanced period of life, and is more an affection of the mind than of the body; whereas the latter occurs principally from the age of puberty to that of thirty-five, and depends chiefly on debility induced by various causes. Hypochondriasis may, moreover, be distinguished from dyspepsia by the languor, listlessness, want of resolution and activity, fear of death, and suspicion being always present, and by the dyspeptic symptoms being often absent, or when present, they are in a much slighter degree.

Men of a melancholic temperament, whose minds are capable of great attention, and whose passions are not easily moved, are at an advanced period of life most liable to be attacked with this disease; and when it has once taken place, it goes on increasing as life advances, being usually most troublesome in the autumnal and winter seasons; which accounts for more acts of suicide being committed at these times of the year than any other.

Hypochondriasis seems to depend on a loss of energy in the brain, or on a torpid state of the nervous system, induced by various remote causes, such as close and intense study, long and serious attention to abstruse subjects, the constant remembrance of some material loss or disappointment which has occurred, great anxiety of mind, leading an inactive, indolent, or sedentary life, immoderate venery, or a use of crude, flatulent, or unwholesome food, being guilty of great irregularity and intemperance, and by long continued evacuations.

In strict propriety, hypochondriasis cannot be separated from mental alienation. It is unquestionably a form of monomania, and has been so regarded by several modern writers, although some are still disposed to class it with dyspepsia, with which it is undoubtedly often associated.

The great characteristics of hypochondriasis are—a constant dread of imaginary, and, at times, of most singular diseases, or the

most melancholy forebodings, and painful attention to real diseases, under which the person may be suffering, and which are often of very slight moment.

Of the former class are the dread of hydrophobia, which sometime exists to a most painful extent—the dread of cholera, *cholerophobia* as it has been termed, and of syphilis—*syphiliphobia ;* the second when cholera is raging or has been expected to appear in any locality ; and the third when a person has exposed himself to the infection of syphilis, and has especial cause for dreading the development of the disease.

If it be a mere matter of opinion on which a person is, pathologically speaking, mad ;—as, for instance, that an individual has an unfounded fear of disease and of death—we call it merely "hypochondriasis ;" and it does not justify us in calling him "mad."—If a man who has nothing the matter with him, is satisfied he is in a consumption, because he coughs twice a day ; and, because he spits a drachm of mucus in the twenty-four hours, is satisfied that his lungs are full of abscesses, this is a morbid feeling ; but as it would not lead to a criminal act, or to any act which is dangerous to others, we do not say he is "mad." We only call the feeling "hypochondriacal ;" but the nature of that feeling is exactly the same. Many such persons act, on different occasions, very absurdly. Some will not dress as other people dress; some will not eat as other people eat; and they will do a number of things more or less extravagant; but, as the degree of extravagance is less, and as they do no act which is injurious to others, we do not call them "madmen." They merely pass as "*eccentric* individuals ;" but some one in the family will carry his eccentricity to a higher pitch; and then it is necessary to confine him. It is absolute madness.—Suppose a man squanders all his money away ; not for the gratification of a particular feeling, but in a way which is quite contrary to what all other people do ; or suppose he inflicts punishment upon himself, and attempts to murder himself or others, or commit depredations on the property of others ; we are not justified in saying, *legally*, that he is mad ; although, *medically*, we are quite satisfied that he is in an unsound state.

Diagnosis.—The symptoms of hypochondriasis are most diversified, and generally exist along with the healthy play of various functions. At other times, the digestive or other functions are more or less deranged, and immediately the fears of the patient overcome his reason, and he imagines the most trivial symptom to be of the greatest moment. Slight flatulence or distension of the

stomach is, in his view, a positive sign of serious inflammatory or other mischief in that viscus. The smallest modification in the number of the evacuations from the bowels, or any change in their character, is the cause of the greatest anxiety, and the dread of some impending disease of a still more serious character, or of death, renders his existence miserable. "I have known a father," says a recent writer, "in whom I could discover no disease, regardless of the sickness and approaching death of a child, constantly saying, that his own case was more severe and alarming."

It is attended with such a long train of symptoms, that it would fill many pages to enumerate them all, as there is no function or part of the body that does not suffer in its turn by its tyranny; the miserable patient indulges wild imaginations, and fancies that he labors under almost every disease; and with respect to these feelings and apprehensions, he entertains the most obstinate belief, being highly displeased if any attempt is made to reason with him on the absurdity of his persuasions.

There are few examples of hypochondriacal people who find themselves worse at night than in the morning; the generality of them, like most of those who are afflicted with any of the complaints styled nervous, are seemingly hurt by their sleep, little as it is; and the longer they happen to sleep the worse they are; they awake out of it with confusion, and do not come immediately to themselves; and when they do, they can think only of melancholy subjects, and feel the worst horrors of their disorder. This state continues till dinner, with very little abatement; after dinner they feel themselves a little revived; and at night the tide of their spirits returns, which being desirous to enjoy, and dreading their certain ebb when they lie down, they go late and with reluctance to bed.

In hysterical women the operations of the animal powers seem to be the most disturbed and perverted; but in men the mind is most affected; involuntary exclamations, faintings and convulsions of all sorts, being most common in women, and silent despair in men. Hence, perhaps, suicide occurs more frequently with men than among women.

As to the prognostic, the disease, if recent, is rather to be regarded as troublesome than dangerous; but if long continued, it is apt to produce scirrhi of the viscera, cachexy, dropsy, incurable melancholy, or madness.

Treatment.—The indications of cure in this disease seem to be,

1st. To excite the nervous energy which has been depressed, and that particularly by attending to the state of the mind.

2dly. To remove or alleviate the symptoms which serve to continue and aggravate the disease.

3dly. To strengthen the alimentary canal and promote the secretions.

To answer the first of these indications, the patient's attention is to be engaged and diverted to other objects than his own feelings; he is to be directed to vary the scene frequently by going from one place to another; to associate as much as possible with agreeable, cheerful company; to engage in such pursuits as will afford him moderate exercise in the open air, which gardening, riding on horseback, and field sports, as hunting and shooting, are particularly calculated to do; and by all means to avoid absolute idleness; but in doing this, all application to former studies, especially professional ones, is to be forbidden; entertaining books will, however, be serviceable, as assisting to divert the mind from itself. Gardening is a pursuit highly proper for hypochondriacs, as it will keep the mind alert and the body in exercise: such as live in the country should therefore engage in it. In cities or large towns where this healthy recreation cannot be enjoyed, no better substitute can be employed than that of fitting up an apartment as a work-shop. Working in a cool and free atmosphere would prove a deliverance from that chilliness which for above half of our year so miserably persecutes the tender, and it might act equally as a charm on the ruffled spirits.

Hypochondriasis is far from being a metropolitan disease, as the multiplicity of external objects, which in a large capital are continually giving a new direction to the current of thought, is of course unfavorable to the uniformity and self-absorption of the melancholy. A residence, therefore, even in a large city, which affords objects of interest and motives of exertion, ought to be recommended to hypochondrical or nervous patients, in preference to the most healthy situation in the country, where there is not enough to rouse the sluggishness or fill the vacuity of the mind.

Compassion, and not raillery, is to bestowed upon the hypochondriac, as the firm persuasion which he entertains will not allow his feelings to be treated as imaginary, nor his apprehension of danger to be considered as groundless, however the physician may be of opinion that it is the case in both respects. To gain his confidence, it will be necessary to attend to his complaints, as if

they were all real; and to satisfy him, it will by all means be advisable to give him some kind of innocent medicine, changing it from time to time whenever he expresses any disappointment of relief.

In the absence of every other diversion, even the swallowing of medicine may be a source of amusement. The times for taking the different draughts, or doses, are so many epochs in the chronology of a hypochondriac, which by dividing, help to conquer the tedium of his day. However sceptical a physician may be with regard to the inherent or permanent qualities of any medicine, it is his duty, perhaps, to take advantage of the tide of opinion; and he may honestly make use of his patient's credulity, in order to relive him from the pressure of his disease, and render the partial weakness of his mind instrumental to the general restoration of his corporeal strength.

The complaints of hypochondriacs should be treated by the physician as of real existence; and from whatever cause they may arise, it is his province to employ his art to subdue it; not to ruffle an irritable mind by unseasonable levity, or expose a morbid sensibility to insult and reproach.

From the slow evacuations of the stomach in melancholic temperaments, acidity often prevails in a high degree with hypochondriacs; to obviate which, and answer the second indication of cure, it will be necessary for the patient to make use of absorbents and alkalies, as advised under the head of Dyspepsia.

Costiveness, which is another frequent symptom in hypochondriasis, is to be obviated by instituting a regular custom of periodically soliciting an evacuation by voluntary and persevering efforts once or twice a day at certain hours; and until the desired intention can be established in this way, some gentle laxative may be taken occasionally, as mentioned under the head of dyspepsia.

Nervous people are not apt to be troubled with what are termed muscæ volitantes (atoms flying before the eyes, which, though harmless and slight, often excite alarm and apprehension on the part of such patients, and may be mistaken for amaurosis, or incipient cataract: but whenever the appearance of muscæ volitantes is unaccompanied with the sensation of a mist which more or less obscures the appearance of objects, we may safely conclude that it is not a symptom of cataract; and whenever this appearance is not accompanied with a fixed state of the pupil, it may be safely inferred that it is not a symptom of gutta serena.

The use of a warm bath is generally resorted to with decided

advantage by hypochondriac patients as a remedy for wakefulness, or broken and untranquil sleep, even when they had previously tried all medicinal and dietetic opiates, as well as other methods for producing the same effect, without obtaining the object of their wishes.

Frictions of the whole body every morning and evening for ten minutes or longer, with coarse flannel cloths, will be likely to prove beneficial; and so will be also bodily exercise. For the cure as well as prevention of hypochondriasis, and other nervous affections, there is no means better adapted than bodily exercise in the open air; and a man suffering under a fit of the vapors will often find that by riding or walking, particularly in agreeable company, he will be able to remove it. The load upon his mind may be exonerated and removed by the continued agitation of his body.

Walking, no doubt, is best adapted to a state of unimpaired health or vigor; but for the feeble and hypochondriacal, or those who are affected by any visceral obstruction or disease, riding on horseback is for the most part preferable to any other kind of exercise. Instances not unfrequently occur of persons with broken spirits and apparent ruined constitutions, in whom an unexpected restoration to strength and cheerfulness has been effected by regular and daily horse exercise, when almost every other method of recovery has been tried without any sensible advantage. Nearly to live on horseback will be a good prescription for all nervous as well as bilious patients.

A person often indolently bends under the burden of hypochondriacal indisposition, which a spirited effort would at first have removed; and on this account we would strongly recommend that those that are laboring under this distressing evil should be stimulated to gradual exertion of all their faculties, both bodily and mental.

The diet in hypochondriasis should consist of what is light, generous and nutritive, avoiding what is apt to prove either acescent or flatulent; and, therefore, animal food will be most proper. The stomach ought never to be overloaded; neither should it be suffered to remain perfectly empty. If a faintness is perceived at any time between meals, a bit of cake or biscuit may be taken with a glass of wine.

The use of the vapor bath will be found decidedly serviceable to the hypochondriac as a remedy for wakefulness, or broken and untranquil sleep, and should never be omited just before going to

bed. When the patient comes out of the bath, the rough towe should be freely applied to the surface, for at least ten minutes.—This course often proves efficacious in procuring sleep when medical and diatetic anodynes fail to obtain the object of their wishes. The tonic bitters may be advised, with an occasional emetic or course of medicine, particularly where there is a loss of the powers of the stomach.

If any embarrasment of the liver should co-exist, the courses of medicine should be more frequently repeated; and a pill compounded by the following receipe is also highly recommended.—The extract of the dandelion three parts, seeds of lobelia, capsicum, golden seal, bitter root, each one part, made into a common sized pill; two to be taken three times a day.

OTITIS—OTALGIA—EARACHE.

Description and Causes.—Until of late years, the diseases of the ear were but little attended to by the profession, and, by almost common consent, they were allowed to pass into the hands of individuals calling themselves Aurists, many of whom were imperfectly educated. As, however, in the investigation and management of most aural diseases, various manipulations are demanded, they have been esteemed to belong rather to the domain of surgery; and their consideration, consequently, has been generally transferred to works on external pathology. There are, however, some pathological conditions of the organ, that cannot be passed over in this work; but, before proceeding to them, it may be well to refer briefly to the anatomical arrangement of parts that are implicated.

The organ of hearing may be divided into three parts: 1, the external ear, or that exterior to the membrana tympani; 2, the middle ear, the space contained between the membrana tympani and the internal ear; and 3, the internal ear, in which the auditory nerve is distributed. The two first of these may consequently be regarded as the physical portion of the organ of hearing: the last as the nervous portion.

The external ear, it must be borne in mind, is lined by a prolongation of the skin, which passes into the meatus auditorius externus, and, becoming gradually thinner as it proceeds, is ulti

mately reflected over the outer surface of the membrana tympani. It is in this tegument, that sebaceous follicles or crypts are placed, which secrete the cerumen. This humor sometimes accumulates in the meatus, and may be the source of deafness, as well as of irritation and inflammation of the membrane. The distance between the external aperture of the meatus and the membrana tympani is about an inch in the adult; and by raising the pavilion, so as to straighten the passage, and permit the rays of the sun to fall into the meatus, the membrane can be readily seen. This can be much better accomplished, however, by means of an appropriate speculum, by which, with the aid of the light of the sun, or that reflected from a mirror, the membrana tympani and meatus audimay be minutely examined, with the view of detecting any existing morbid condition.

The external ear is, consequently, a *cul-de-sac*, formed by a prolongation of the common integument. It has no aperture of communication with the middle ear.

The middle ear or cavity of the tympanum is bounded externally by the membrana tympani, and internally by the internal ear. It communicates with the cells in the mastoid process of the temporal bone; and with the throat by means of the Eustachian tube. In the bony parietes, forming the boundary between it and the inner ear, there are two foramina—the *foramen rotundum*, and the *foramen ovale;* both of which are closed by membranes; and to the latter is attached one extremity of a chain of bones or *ossicles*, which passes from the posterior surface of the membrana tympani to the foramen ovale. In health, the Eustachian tube is pervious, and readily permits the passage of air to, and from, the middle ear. The whole of this cavity is lined by a mucous membrane, which is reflected over the membrana tympani proper, passes down the Eustachian tube, and commingles with that of the pharynx. This lining of the middle ear is, in reality, fibro-mucous membrane and periosteum.

Lastly, the internal ear is the most important of the auditory apparatus; but it is of the least consequence to the therapeutist, as it is beyond the reach of his agencies. In it is distributed the auditory nerve, which enters the meatus auditorius internus in the petrous portion of the temporal bone, passes into the cavities of the internal ear, and terminates in the different parts of the membranous labyrinth.

Along with the portio mollis or the auditory nerve proper, the portio dura or facial nerve proceeds along the meatus auditorius

internus, and passes through a foramen near the base, to gain the aqueduct of Fallopius, along which it proceeds, receiving the Vidian twig of the fifth pair, and giving twigs, containing motor and sensitive filaments, to different parts of the middle ear. It is the portio dura, which—as already seen—is concerned in one form of facial paralysis.

External otitis is often connected with the strumous habit; and a predisposition is afforded by dentition and by previous attacks. It is often caused by the introduction of extraneous bodies into the ear, and by picking the ear. Not unfrequently, too, it is induced by the extension of inflammatory and cutaneous affections of the neighboring parts. It is not always, however, easy to appreciate the cause.

Inflammations of the ear are for the most part unaccompanied by pyrexia, although the sufferings of the patient are sometimes very great; but in some instances they are attended with fever, assume a formidable appearance, coma, delirium and convulsions supervene, and even a fatal termination has been the consequence.

Otitis is produced by the same causes with other inflammations, but by some more readily than exposure to cold.

Diagnosis.—*Earache—Otalgia*, *Otodyne*, *Dolor aurium*, *Spasmus aurium*; Fr.—is an affection often met with in childhood, but adults are not exempt from it. It is extremely painful, but is rarely of any consequence. At times, it appears to be wholly neuralgic; but, at others, is connected with more or less otitis, and is occasionally followed by a purulent discharge.

Inflammation of the external ear is indicated by redness, tumefaction, pain and heat in same part of the external ear, accompanied by a mucous or purulent discharge from the meatus auditorius externus or from the surface of the pavilion.

The inflammation may be confined to the lining of the meatus, when it has received, from some, the name *Otitis catarrhalis*, or it may affect the integuments of the pavilion, as in cases of frostbites or where inflamation of the skin has extended from other parts to it, as in cases of erysipelas faciei. The inflammation may, however, extend to the cellular membrane beneath the tegument and to the fibro-cartilage of the ear, giving occasion to abscess, sloughing of the fibro-cartilages, etc. Occasionally, too, as the result of external otitis, an abscess forms before the meatus auditorius externus, which breaks into the meatus, and requires attention, inasmuch as the pus that accumulates may exert a sinister influence on the neighboring parts, and denude the bones and fibro-cartilages of the external ear.

At times, in this form of otitis, the tumefaction of the ear is so great as scarcely to admit the entrance of a knitting-needle into the meatus.

Treatment.—In regard to simple otalgia or earache, the physician is rarely consulted. Should the severity of the pain, however, be such as to require him to prescribe, and the signs of inflammation be slight, fomentations may be applied to the affected ear, and a little warm oil be dropped into it. During the night, a soft poultice may be substituted for the fomentations. Generally, in cases of otitis of the external ear, it is not necessary to have recourse to any very active treatment.

In the treatment of this complaint in its inception, if the pain does not give way by two or three courses of medicine, and a discutient local remedy, and should continue to increase, suppuration may then be expected to ensue. This we may then encourage by the application of warm, emollient poultices; and when the abcess bursts, or is opened, we may syringe the ear from time to time with astringent decoctions.

When otitis is accompanied with universal pain diffused over the whole head, fever, delirium, or coma, the most powerful general means are to be combined with the local ones, as recommended in phrenitis.

Suppuration is generally the consequence of these violent forms of the disease, and then the structure of the whole internal ear is often destroyed, the bones being discharged through the meatus auditorius with much purulent and fetid matter. In such cases, the sense of hearing in the ear affected is wholly lost, of course.

Fistulous ulcers of the internal ear are now and then the consequence of suppuration, and prove very troublesome.

Ear-ache sometimes continues many days without any apparent inflammation, and is then frequently removed by filling the ear with cotton or wool, wet with third preparation and olive oil.

The remedial agents are to be applied to the primary cause.—Scarlet fever, occasionally terminates in a fistulous ulcer and a chronic discharge from the ear. This occurs more frequently in children, and when it assumes that form, is sometimes very protracted, continuing for years, defying all constitutional local remedies. In the application of the treatment, the compound syrup of sarsaparilla with frequent astringent injections, with unremitted, full courses of medicine and tonics, have been found most serviceable.

If the pain be very severe, take hops, (*humulus lupulus*,) a suitable quantity; vinegar and water, equal parts: simmer till the strength is extracted; enclose the hops in linen or flannel, and apply them over the ear. Repeat the same until the pain subsides. Let the feet be bathed in warm water.

Should these means not remove the pain, take oil of sassafras, (*oleum lauri sassafras*,) half an ounce; olive or sweet oil, (*oleum olivarum*,) one ounce; camphor, (*gummi camphora*,) one drachm; tinct. Lobelia one half ounce: mix.

Warm this liniment, and pour a small quantity on a pledget of cotton, and bind over the ear. Provided the pain still continues, drop it in the ear.

If the above fails, give an anodyne. Perspiration may be promoted and a *purgative* given.

The sap of walnut or hickory wood is said to be an infallible remedy for pain in the ear, and is highly recommended for deafness. Take a small stick, put it over the fire or stove, and place a vessel under each end to receive the sap; put it into the ear on cotton, and repeat occasionally. An elderly person states that he obtained it among the Indians, and has known it succeed in numerous cases.

This treatment will almost invariably remove the pain and inflammation of the ear. The complaint more generally attacks children, but adults are subject to it. It sometimes becomes chronic in its character, and is very protracted. When this is the case, if the means prescribed above should not be sufficient to remove it, apply a *mustard* plaster behind the ear, and also to the bottom of the feet, particularly at night.

Great care is necessary in screening the head from any cold or current of air. The head should be covered, particularly at night, and a pledget of cotton or wool applied in the ear.

TETANUS—LOCKJAW.

Description and Causes.—The name of this disease is derived from the Greek τεινα, which means "to stretch," from the great stretching and spasms that exist in this complaint. They chiefly affect the muscles of the lower jaw, of the neck and of the trunk, and a variety of names are applied as the different muscles are contracted. When the jaws only are affected the case is called trismus; when the body is drawn backward and arched, the te-

tanic spasm is called episthotonos; when on the other hand, it is drawn forward, it is denominated emprosthotonos, and if the body is drawn to one side, it is termed pleurosthetonos. Trismus, or simple lockjaw, and episthotonos are the most common. This disease has been divided by some authors into general and local, or idiopathic and symptomatic, the former arising from causes acting directly on the nervous system, the other, from some injury the nerves receive. This last is termed traumatic.

This disease is caused in hot climates and hot seasons, from the want of ventilation, good food, comfort and attention to the bowels. Among the exciting causes we should mention sudden cold, when the body is hot. The traumatic species are caused by wounds of the hands and feet, of the thumb and great toe, especially when these wounds are of a contused character. Wounds will often manifest no signs of tetanus till the patient is exposed to cold when the spasm will immediately commence.

Traumatic tetanus may occur in all states of a wound, in healthy and unhealthy, after the wound has nicely healed, and whether it be large or small. Indeed the condition of the wound seems to have little connection with this formidable disease so far as any external appearance is concerned. The lockjaw of infants is termed trismus nascentium; some have attributed it to the state of the navel, to cold, to retention of the meconium, etc. It has been said to arise from worms in the intestines.

Diagnosis.—Among the most common symptoms of this complaint, is a very severe pain at the bottom of the sternum in the scorbiculus cordis region; it darts from this point backwards to the spine in the direction of the diaphragm. As soon as this pain commences the spasms of all the muscles about the neck become exceedingly violent, and the head is drawn in various directions. The tongue is bitten; there is a peculiar rigidity of the muscles, a state which is spasmodic, but *constant*, not *conclusive*—there is no alternate relaxation and contraction. The body is drawn into a peculiar position, as above described, emprosthotonos, pleurosthotonos or trismus. There are none of the signs of inflammation, nor is there the appearance of organic disease. In tetanus, the muscles affected never altogether relax, but they may be more contracted sometimes than others. The diaphragm and abdominal muscles are often so contracted that the belly feels as hard and tense as a board; these contractions have been so powerful as to lacerate the recti muscles. There is little or no fever; the pulse is

contracted, hurried and irregular, and the respiration is the same. The face is pale, with a cold sweat upon it, and very often the extremities are cold; in some few cases when the spasms are frequent, the face may be flushed and a warm sweat forced out of the whole body.

The head is seldom affected with delirium except in the last stages. Indeed the unfortunate patient is generally perfectly conscious of his sufferings and all that is going on. Nausea and vomiting are not uncommon, yet they are not long continued, the appetite may be good, and the food well digested, the bowels generally costive and the urine retained.

As tetanic spasms stimulate other forms of disease it may be well to point out the differences. There is no terror in this affection as we have in hydrophobia, there is no morbid corporeal sensibility, no excitement of mind, or fear of water. It differs from rheumatism in not being in the joints, but in the middle of the muscles; in rheumatism also there is tenderness in some parts of the jaw and much heat as well as constant pain. There is some resemblance to hysteria, but we have no *globus hystericus*, no flatulency and no suspension entirely of the convulsions as we have in hysteria. There is also a sort of tetanic spasms in severe ague during the chill, but it need not be taken for tetanus. There are also certain convulsions after the administration of some narcotics, as opium and strychnine, but the fact of these articles being taken, or other symptoms showing themselves will enable the discriminating physician to know the symptoms.

Treatment.—In describing the treatment of this affection, we might first state what should not be done, and that is just what is recommended by the Allopathic authors. Never bleed, never administer drastic purgatives, or powerful narcotics, neither blister or even divide the nerve, and yet this is the treatment recommended by the best authors, together with mercureal courses, poison hemlock, digitalis, tobacco, and even prussic acid—in fact, almost every remedy that could act most powerfully on the system and yet without any evidence that they have been sufficiently productive of good to bring any one remedy into any thing like general use. It is justice to say that some old school books do mention warm bathing and electricity which may be beneficial in some cases.

We now proceed to give the reform medical treatment, and this will in most cases be found to cure this disease, if taken in season and properly and energetically used, before the spasms have

produced some lesion of the nervous system, or so prostrated the patient as to prevent reaction.

The most efficient remedy is lobelia in large and repeated doses, especially the third preparation of this article; let it be administered with an unsparing hand, both *per anum et oris*. Let the muscles concerned, be bathed with it. If this course is perseveringly pursued immediate relief and rapid convalesence will take place. Some of our authors have recommended spirits turpentine in the enemas. This is not objectionable, and in some cases may be beneficial. In the traumatic species attention must be paid to the wound even, if it is healed up. Let it be closely examed to see if there may not be some matter or foreign substance in the cicatrix. As the tongue is very liable to be hurt, let a piece of cork be introduced between the teeth to protect the tongue.—The vapor bath is a most valuable adjuvant in connection with the emetic.

As there is a suppression of urine or rather a spasmodic contraction of the sphincter which is attendant on this disease, the turpentine injections with some mucilaginous substance, will be found indicated with the lobelia and will remove all these symptoms.

In connection with the above treatment, the general use of tonics and applications of liniments, cataplasms, etc., as will readily suggest themselves to every intelligent physician, may be administered.

In traumatic tetanus, the part injured may be bathed in strong ley made from good hard wood ashes.

Prof. Friend, of N. Y., recommends the following as a good formula for this complaint:

R.—Sem. Lob. Inflata, - - - 20 grains.
Scutellaria, - - - - 15 "
Cypripedium, - - - - 15 "

Mix and divide in doses of 10 grains, and give one powder every half hour in a tea of the Scullcap, Enemas of Lob. Inflata in a decoction of any of the anti-spasmodics should be administered at short intervals until a complete relaxation and a free evacuation of the bowels is produced. This treatment should be followed by the employment of stimulants internally and by applications to the surface.

If the disease arise from a gun-shot wound, or from any injury attended with sloughing, or with symptoms of mortification, a poultice should be applied, prepared in the following manner, viz:

To a pound of wheat flour, add half a pint of yeast, and a large tablespoonful of fine ginger, and after mixing them well together, set the mixture by the fire until it begins to rise, then spread and apply it. The poultice must be kept warm, and changed morning and evening.

When a punctured wound is the cause of locked jaw, the wound should be opened with a lancet or other instrument, and every effort used to excite inflammation and the formation of matter, by pouring spirits of turpentine or No. 6 in the fresh wound, and applying warm, stimulating poultices, such as a mixture of slippery elm and cayenne pepper. If the injury be on the hand or foot, the part should be steamed occasionally, in order to attract an afflux of blood to the part, and favor the formation of pus.

Either a mustard plaster or pepper poultice must be kept applied to the spine, extending from the nape of the neck eight or ten inches down the back. The mustard should not be allowed to cause a blister.

CUTANEOUS DISEASES.

General Observations.—These affections which are commonly called *cutaneous*, we shall divide into four classes. First, those that are only confined to the cuticle or papular. Second, the *exanthematous*. Third the *vesicular*, and Fourth, the *pustular*.

In those termed cutaneous it is very important to remember that although these are called affections of the *surface*, of the body, yet many of them may really be of a much deeper nature, that is, may frequently be connected with, or dependent upon, a general diseased state of the system. Frequently the mucus membranes are affected as much as the skin. In our remarks, therefore, on the various forms of disease which are called cutaneous, we shall pursue the course above indicated, viz.: describe the simple inflammation not larger than the point of a pin as *papulae*. Then we will describe a more extensive inflammation, the *exanthema*, then those that produce a little collection of matter, the *vesiculæ*, then those of a larger character as *bullæ*, then where *pus* is secreted as the pustulæ, then where pus is secreted in larger quantities as *furunculi*, and when the inflammation proceeds to *gangrene*, the scaly diseases, and lastly those seated more deeply as in the *tuberculæ*.

Papulæ.—When inflammation of the skin appears in minute

spots, these are called papula, the English of which is *pimple.*—The term is commonly used to signify any little elevation or inflammation of the skin, whether there is any contents in them or not. The duration of the papulæ is uncertain, but they terminate for the most part in scurf. If a slight inflammation be attended by, watery contents, it is called a vesicle, but if the contents be pus we call it a pustule, so that with respect to the most minute inflammation of the skin, we have a papula, a vesicle or a pustule.

When these papulæ occur, there is experienced an uneasiness, which may be called pain, but it is a pain of an itching character. The cuticle is generally separated in such minute portions, that only a fine dust or scurf comes off, which will take place not only with evident inflammation, but sometimes, with so slight a degree, that we can hardly call it any more than *irritation.* A new cuticle is formed underneath the exfoliation, and there is no rawness produced. There is no moisture at all ; the parts being perfectly dry. If we scratch the part much, we may convert the papulæ into vesicles as water forms in the skin ; again if we produce still more inflammation and cause it to produce pus, we then have the pustule, and if we carry the irritation still further we may have the furunculus or boil. There are three varities of papulæ which we will now describe, viz.: Strophulus, Linchen and Prurigo. The first two, are pretty much the same disease, only the former is confined to infants and the second to adults.

Strophulus, red Gum.—This is a disease of little importance. The least irritation will cause it, whether in the gums, abdomen, or other parts of the system, and with very little attention it goes away.

If the papulæ be of a vivid red color, but intermixed with red dots or specks, it is then called *intertinctus.* If the papulæ consist of whitish specks, it is called strophulus *albidus*, or *white gum.* If they be all united together it is called strophulus *confertus*, or by the people *rank* red gum, or tooth rash. This form will occur in children from seven to eight months old. The patches may be hard, and they usually exfoliate in a fortnight. In this severe form, it sometimes begins in the legs, and spreads upwards to the loins and navel, with a general redness, the cuticle in some instances cracks into large pieces, and this will occur two or three times in as many months. Some children will be troubled with it till they have cut all their first teeth.

The most prominent cause is supposed to be the irritation of teething, and exposure to cold and dampness.

Treatment.—As there is general acidity of the stomach present, this may be corrected by an alkaline preparation. There is no better compound than the neutralizing mixture. In severe cases it will be found necessary to administer the warm bath, and that, too, quite frequently. After the operation of the bath, an emetic should be given and this followed by some astringent wash if the external surface is affected, and gargles if the mouth and throat are implicated. Particular care should be taken that the child is not exposed to the cold, for it is somewhat dangerous to put a *sudden* stop to the eruption, by allowing the patient to catch cold. If this takes place, more energetic means should be used to equalize the circulation and get up a determination to the surface, such as our antispasmodic, etc. But this form of disease is rarely so severe as to require much treatment.

Lichen.—This disease usually occurs on the extremities. The size of the papulæ is that of the head of a small pin ; and they generally terminate in scurf. This disease is sometimes acute ; sometimes recurrent ; sometimes chronic ; again general, and then partial and sometmes connected with internal disease. It is divided by authors into Lichen *simplex*. Lichen *pilaris*, that which occurs about the roots of the hairs. Lichen *circumscriptus*, a form in which the papulæ are clustered together. Lichen *agrius*, this is the most severe form, Lichen *lividus*, Lichen tropicus, Lichen urticatus.

The simple form of this complaint lasts generally from ten to twenty days. Sometimes it is preceeded by nausea, vomiting, and pain of the head, and sometimes these symptoms will disappear as soon as it comes, while at others, they will continue with it. It is said, when it occurs about the hairs, that it is often chronic. When it occurs in the severe form called lichen *agrius*, there is a great degree of itching and a great degree of heat ; and the inflammation is so violent that we sometimes have vesicles and excoriations.

There is one kind of this affection, called lichen tropicus or prickly heat, which cause a great inconvenience to most persons in a warm climate. When a person is subject to this variety of the affection, the moment he goes to bed or takes exercise, he has a most violent prickling of the skin. It is not easily repelled, and its sudden cessation is generally the effect, not the cause, of an internal affection. Sometimes the papulæ, in this disease, are attended with little bumps, like the bites of gnats or bugs ; and then it is called lichen *urticus*. It affects the head and face, particularly in spring and summer, and is attended by a stinging pain.

Treatment.—In all these forms of disease, the treatment is to be the same as in the strophulus of children. In severe cases the Lobelia Emetic will be indicated. For external application, the pepper-sauce will often be good. Salt and water, or Lime-water, or perhaps pure cold water, will be superior to all other remedies.

A mild laxative may be indicated, and a wash of strong infusion of bayberry and blood-root, in some cases.

The course to be pursued in all forms of exanthematous disease, is pretty much the same, viz: a gentle and natural termination to the surface must be encouraged by stimulants, the surface often sponged, and a mild action on the kidneys kept up, with moderate cathartics.

Prurigo.—In prurigo the papulæ are very little discolored, being nearly of the same color as the skin; but they are larger than the lichen. They are particularly characterized by itching, which is a far more striking symptom than the eruption itself.

The papulæ are not so pointed as in lichen. The itching is so severe that people scratch themselves till they rub off the skin, and then we may have vesicles, and if the scratching is continued, suppuration will take place and we have pustules, and the skin may be brought into such a state that it will crack, and become indurated and hypertrophied; then it becomes chronic.

If the disease occurs in the mildest form, it is called Prurigo *mitis*. This chiefly affects the young, though not confined to them. It occurs particularly about the spring or beginning of summer.—It is said by some to degenerate into the itch, but this is doubtful. Sometimes the eruption is scarcely visible at all, yet there is intense itching.

If the disease is very severe and the itching resembling the bite of an ant it is called Prurigo *formicans*. This is really a dreadful disease. It affects adults at all periods, and it occurs in every part of the body except the palms of the hands and the soles of the feet. It is sometimes preceded by feverishness, pain in the head and sickness.

There is a third form, which is confined to old age, and thence called Prurigo *senilis*. This is also a very severe form of the disease. It generally continues very obstinate and for a long period. There are no scales or scabs, or water, nor is there any pus.

This form of disease is sometimes local, and confined to some particular part of the system, and is named from its locality.—When it is confined to the prepuce of the male it is called Prurigo *preputii*. Sometimes it has occurred within the urethra; and it

is then named Prurigo *urethralis*. If it effect the extremity of the rectum, it would be prurigo *podicis*. The worst seat of it, however, is the pudendum of the female, Prurigo *pudendi muliebris*. It is so distressing that the female cannot go into society at all. It often excites desire for copulation, and produces nymphomania. It rarely occurs in females before the middle period of life. It sometimes comes on after the fourth month in pregnancy.

Dr. Willan attributes the milder form of prurigo to sordes collected on the skin, producing some degree of irritation, and also preventing the free discharge of the cutaneous exhalations: the bad consequences of which must necessarily be felt at that season of the year when the perspiration is most copious. Hence he considers those who have originally a delicate or irritable skin, will in such circumstances be the greatest sufferers. The worst form, Prurigo *formicans*, according to Willan, is attended with an unhealthy condition of the system, consequent often on grief, watching, fatigue and poor diet. Want of proper cleanliness is also a frequent cause of this disease among the lower classes. Certain modes of diet have likewise a considerable effect in aggravating or exciting the Prurigo *formicans*. Many persons are affected with it who in the summer season live much upon fish and other stimulant animal food, and especially those who drink freely of wine or spirituous liquors.

This is not a dangerous disease, seldom fatal, except it is complicated with other complaints; yet it is sometimes a most troublesome affection.

Treatment.—In the first place the most scrupulous attention should be paid to cleanliness; then applications of cold water to the parts affected. Let them be bathed as often as the itching comes on, it will always afford relief.

Astringent washes are indicated in many cases, and as the blood is often in a morbid state, alteratives will be found to be beneficial; and general treatment to invigorate and renew the whole system. Diuretics are sometimes indicated, research must be made for the cause and it must be removed, whether it be in the diet, want of cleanliness, any habits of body or mind, or from any irritation whatever—it must be removed.

Patients should avoid going near the fire or taking much exercise to irritate the skin.

For local applications, vinegar and water, chloride of lime or soda, will be found to be advantageous, as it may have an effect to neutralize any irritating substance that may be in the capillary

system of the surface. Worms in the rectum will cause Prurigo *podicis* and they must be removed; so will stone in the bladder cause an itching in the bladder. In these cases, vermifuges and general remedies will be indicated.

A simple solution of Borax and water applied a few times to the parts affected will often afford a permanent cure.

Pompholyx, Water Blebs.—We have in this disease large vesicles filled with a watery fluid. It receives its name from a Greek word, which means a *bladder*. When it breaks an excoriated surface is exposed, and a scab is formed of the fluid and cuticle together.

The pathological condition, giving rise to this form of eruption consists in an inflammation of the rete mucosum; by which a more copious secretion of serous fluid takes place, than can be transmitted by the cuticle, thus causing its separation and elevation. In proof of this, we may mention, that the rete mucosum remains adherent to the cutis, and is not detached with the cuticle, as happens when this latter is forcibly torn off.

Bateman describes three varieties of this affection, viz; Pompholix *benignus*, Pompholix *solitarius*, and Pompholix *diutinus*, because it is chronic. It is folly to make these names, or to try to keep up distinctions in this form of disease. It may be well, however, for us to recollect that the disease may come on with only one vesicle, or that there may be several, or that it may last for a short time or a long time.

Any large vesicle on the skin occurring as an idiopathic affection, may be called a pompholix. Sometimes there is only one of these bullæ, and sometimes there is a succession of them, and persons will have them month after month. Sometimes, all at once, there will appear a great bleb on the foot, and we have only to pinch it and it goes away, without any other treatment.

Treatment.—But little is required, as it is a form of disease almost always complicated with other complaints. The warm and vapor baths, with constitutional treatment, and an attention to such local difficuties as may exist, is all the direction necessary in this complaint.

Impetigo.—This disease will occur sometimes in circumscribed patches, and resembles herpes very much; it is then called impetigo *figurata*, and frequently there is inflammation round it. This form when it occurs about the face is the same disease that is called by some authors *crusta lactea*. When this eruption is very much extended over the surface, it is called impetigo *sparsa*

(sprinkled.) Now and then there is a thick scab, and then it is called impetigo *scabida*. The parts look like the bark of a tree: only it is not a diseased cuticle, but a real scab formed of real pus. When there is much inflammation round, it is called impetigo *crysipelatodes*, and, again, there is such irritation, that it is denominated impetigo *rodens* or gnawing. But these names are but of little use. It is only for us to remember, that this disease may occur with scabs, with a great deal of inflammation, and that it may occur with ulceration. This disease occurs particularly on the extremities. We see both sexes affected with this disease on the front of their legs; sometimes running all round, and sometimes upon the arm. If it is not properly treated, it will sometimes last for a very considerable time, even for years. Sometimes there is a considerable inflammation attending it.

Treatment.—Particular attention should be paid to diet in this disease, for without abstinence from those gross and hearty and greasy articles, it will be an obstinate disease to manage. Cold water applied often and continued will effect a cure. Most of the chlorides, as a wash, are beneficial..

There need be little variation in the treatment of this affection, from those we have described, which are so similar, especially Eczema, as this form may be mistaken for it, or may run into it. Alteratives are indicated.

Ecthyma.—This form of pustular disease is named ecthema from the Greek εκθυω, *to break out*. The pustules are all distinct. In impetigo the pustules cluster, but in this they are all quite distinct, and sometimes very large. Without knowing anything of the history of the case, at first we might think that the patient had the small pox. It is said to exhibititse lf in the venereal wards of the hospital among those who have taken mercury, in consequence of that poison. The pustules are all distinct, large, circular and full of matter; not flat on the top, but globular

Diagnosis.—The pustules are distinct in this dsease, and some of them run into scabs. They are not very numerous except when they are quite small, they may be so. In impetigo the pustules are circular and not so distended; and have little flat tops. Sometimes in impetigo they will congregate into one large mass; but in ecthyma the scabs are all distinct, though they may be large.

One of the varieties of this disease is called ecthyma *vulgare*, and it certainly gives a person a very vulgar appearance; if it be a little darker, it is called ecthyma *luridum*, and it it occur in

children, it is called ecthyma *infantile*. But these various subdivisions of Willan are unimportant.

It often occurs, as in the other cutaneous affections, with a sharp inflammation, and may last for a short time; just like herpes or some other inflammations, which produce mere serum, or which cause no secretion at all, but constitute a mere redness.—In most cases, ecthyma is a chronic affection, and lasts a considerable time, as it attacks patients who are out of health, and are suffering under other forms of disease.

Treatment.—The most eligible treatment is to strengthen the patient the best way we can. Use that general tonic plan that will tend to restore the health, and remove disease from the other organs that may be implicated.

The cold bath, the wet sheet, the warm bath, and the vapor bath, occasionally are all indicated.

Rupia.—This name is sometimes applied to an eruption that cannot be distinguished from ecthyma. It occurs in the same circumstances, the secretion soon becomes purulent, and after a time there are the same black scabs. When the scab becomes conical, it is called rupia *prominens*. We have the same appearance in ecthyma.

This is quite a common disease among children after measles, smallpox, or almost any other complaint that they may have.—There are two species of this affection, viz: rupia *simplex* and rupia *promens* as mentioned above, but they do not require a farther description, as the same remarks we have made above about ecthyma will apply equally to this.

Treatment.—The same course as recommended for ecthyma, and for almost all these cutaneous affections. We must see that the parts are kept clean, and frequently bathed in tepid and cool water.

Purpura Petechle—*Pathological description and causes.*—This disease seems to consist of congestion of the skin without inflammation. It is characterized by the presence of petechiæ, vibices and echymosis on the skin. These may occur throughout the body, on the conjunctiva, in the mouth and in the interior of the body. It is a very singular disease, and sometimes occurs in the most opposite circumstances. Occasionally there is great debility, weakness of pulse and exhaustion; sometimes the most inflammatory states of the system. The skin is not in a state of inflammation, yet the system is in an inflammatory condition.

It bears some resemblance to the scurvy, and some have sup-

posed it to be the same disease. It sometimes happens without any constitutional affection. There is no affection of the limbs and no sponginess of the gums as in scurvy.

Petechiæ may take place in many circumstances, frequently in typhus fever and in small pox between the pustules. It is common to meet with it in dropsy where there is great debility. Petechiæ very often occur where there is external dyspnoea, and sometimes in phthsis, where there is difficulty in breathing. There may be such debility of the vessels that they allow the blood to ooze forth. Or there may be an impediment to the return of the blood, and the blood may be forced out. Frequently no reason can be assigned for the disease, and it may make its appear ance while the patient is in apparent health.

Diagnosis.—If this disease occur merely on the surface of the body, forming patches, it is called simplex. But where there is bleeding from the mucus surfaces of the mouth, stomach and intestines, it is of a more alarming character, as it may produce apoplexy if the disease is on the piameter. Sometimes the spots are large and sometimes there is ecchymosis. There is no inflammation or tenderness of the particular parts. It appears to be a mere congestion of blood. In severe cases the patient is pale and looks as if he were in a state of anaemia.

When there is a very little inflammation connected with this congestion, and attended with great tingling and even little vibices, it is then called purpura *ruticans*. Frequently there is such tenderness of the vessels in old people, that if they rest upon their arm, or knock their hand against a door so as to produce the slightest bruise, ecchymosis will take place; this has been called purpura *scnilis*, though it is not this disease at all, it is merely such a tenderness of the vessels that the slightest contusion produces ecchymosis. We must therefore distinguish between ecchymosis and purpura.

Treatment.—The treatment for this affection among our Allopathic physicians is very different. There is no satisfactory or universal mode of treatment. Wine, bark and good nourishment seem to be the best. But with us, we should give our pure stimulants, and endeavor as soon as possible to equalize the circulation, warm up the internal organs and call the blood to the vital functions.

Turpentine is said to be very valuable where there is hemorrhage from petechial affections.

Where we have typhus and other constitutional derangements,

complicated with this, we must of course combat the other forms of disease as they arise.

Mild purges are indicated where the patient is not reduced.—Warm baths, nutricious diet, friction with coarse towels and stimulating liniments. If there is much debility, let the strength be sustained by stimulants and tonics.

Discolorations of the Skin.—Before we proceed to the description of those affections of the skin which are of a structural nature, we will remark upon a few discolorations of the cuticle which seem to require little more than to name them. They are lentigo-ephelis, naevi and vitiligo. The first of these,

Lentigo—Freckle.—Is the name given to the multifarious small, rounded, brownish, yellow stains that appear upon the face, hands and neck. Sometimes they cover almost the whole body, especially those of a fair complexion and delicate skin. They are generally most abundant in childhood and youth. They are evidently induced by exposure to light and heat, although they do not seem to result from the direct action of the sun's rays. It is not properly a disease, as the parts upon which they appear never evince the slightest symptom of derangement. The best mode of preventing their appearance is to avoid the vivid glare of light and to protect the skin by some covering.

There are various secret nostrums in the market, but of their virtues in curing this affection we know nothing.

Ephelis.—This is characterized by one or several irregular shaped, broad patches, of a light or dark yellowish brown; occurring most frequently on the front of the neck, chest, abdomen, groins and inner part of the thighs; generally accompanied with itching and sometimes with slight desquamation of the cuticle.

The patches of ephelis generally appear slowly; and remain several weeks or even months. They often occur in individuals enjoying the most perfect health, but sometimes appear to depend upon a particular state of the system, such as that which occurs on the approach of the menstrual period and during pregnancy.—Violent excess may sometimes occasion their appearance, but they often have a connexion with a disease of the digestive organs.—They occasionally occur upon the face of pregnant women.

The patches of ephelis, at first small, increase slowly, and attain a size varying from that of a sixpence or less, to that of the palm of the hand. These patches being separated by intervals of healthy integument, give the skin a very peculiar appearance.—

But at a later period they coalesce over larger surfaces. There is rarely cuticular desquamation.

The red copper color of syphilitic blotches, will always prevent them for being mistaken for this disease.

Treatment.—Little is necessary in this complaint. Mild aperients, with a few vapor baths, will generally succeed. Alteratives and general restorative treatment are indicated. If the itching is very troublesome, an alkaline wash may be used.

Nævi—mole.—Under the term of nævi, there are two very different forms of congenital affection of the skin included. The one termed nævi pigmentares, or mole, is seen on all parts of the body, and of all sizes. The other, nævi vasculares, or mother mark, is a condition of the vascular system and is not yet fully accounted for.

These require no medication, but in some few cases where they increase in size, it is only necessary to have recourse to a surgical operation.

Vitiligo.—This is a partial colorless state of the skin, either congental or accidental. It occurs frequently among negroes, and occasionally among whites. The small white lines which are seen above the abdomen of females after delivery, or those which succeed to ascites, are called by this term, but rather improperly, as these lines really consist of small lacerations of the rete mucosum, induced by the distension of the parts. The patches of vitiligo are white, and when they occur on parts of the body covered by hair, it is changed to grey or white. It is not uncommon to observe vitiligo on the scrotum. In old persons they often become quite large, but they never cause pain, itching or heat, and never require any treatment.

Vesiculae.—General Observations.—We next come to the consideration of those inflammatory forms of disease of the skin, which are characterized by the secretion of a fluid under the cuticle.

Dr. Willan has defined a vesicle to be, a small orbicular elevation of the cuticle, containing lymph or serum, sometimes clear, transparent and colorless, at other times it is opaque or colored.—These eruptions may be succeeded either by scurf or by a scab. If the fluid be absorbed, and the cuticle which is detached, rub off by degrees in minute portions, it is called scurf, if it is not absorbed and the cuticle is ruptured, a *scab* is formed by the drying of the fluid as it exudes. A scab is defined to be a hard substance covering superficial ulcerations and formed by a concretion of the fluid discharged from them. We have five forms or species of

vesicular disease, viz: Miliaria, Herpes, Eczema, Scabies and Pompholyx. We will describe them in the order mentioned.

Miliaria.—In this disease the vesicles are exceeding numerous (whence their name.) There is a slight inflammation of the skin and a slight rash; sometimes a little more, and then the disease is called *red* miliary eruption: if there are only white vesicles, then it is called *white* miliary eruption. Some have confounded the red variety with scarlet fever. If there is much inflammation, the skin will be red; if not, it will look white from the number of these little vesicles. These miliary eruptions are very frequently nothing more than attendants upon other forms of disease.

If the eruption is very copious, it is preceded by an unusual degree of langour and faintness, and a profuse perspiration which perhaps accompanies it during the whole of its course; and has a sour odor or smells like rotten straw. There is sometimes a sense of heat, prickling and tingling in the skin before the eruption comes out, and even during its continuance. The vesicles at first are exceedingly small and filled with transparent lymph, but in about thirty hours the lymph will become more or less opaque and milky. The tongue may be affected. It may be dark and red at the edges, and the papillæ may be elongated, and there may be apthæ of the mouth and fauces. The duration of this disease is quite uncertain.

Dr. Bateman supposed this disease to be nothing more than the effect of bad treatment. It used to be very common among lying-in women, who were kept in a heated room with blankets placed upon them and thick curtains were drawn around the bed, and where fire was kept blazing in the apartment. It would be almost strange if, under these circumstances, they had not sweated and had a miliary eruption of the skin. But it is probable there is such a *specific* disease as miliary *fever*, besides the *eruption* which may be produced by the cause above described.

This disease is divided into the *benigna* and *malignant*. The miliary *benigna* is preceded by lassitude, frequently by pain over the eyes, and loss of appetite; but sometimes persons go to bed well and wake in a profuse sweat. Very soon vesicles appear.—In the *violent* forms of the disease, all the symptoms are intense, but the stomach is found to be particularly affected. We see this eruption sometimes in imflammation of the stomach, and the sweats then are very fœtid, and the patient smells exactly like rotten straw. The eruption generally comes out on the second or third day, and continues from two or three days to two or three weeks.

This eruption may sometimes be caused by violent passions and emotions of mind; by the inordinate use of cold, crude and unripe fruits, impure water and unwholesome provisions. It may be occasioned by the suppression of any of the usual evacuations, and by the heating treatment above described.

Treatment.—The cause should be discovered and removed if possible. A mild emetic is generally indicated, and about the same treatment we have recommended for other eruptive forms of disease, as they all require the same general treatment. Saffron tea, (*Crocus Sativus*) is a good drink. Great attention should be paid to the temperature, and the patient should not be kept too warm. The diet should not be gross, but yet sufficiently nutritious. The bowels should be kept open, but no cathartic should be allowed. Let the whole surface be sponged with ley water or some alkaline lotion. As there seems to be an acid secretion, these alkaline washes will be found to afford speedy relief and permanent cure.

Herpes.—This is a very mild form of disease and wholly devoid of danger. It may be distinguished from some other vesicular eruptions by the great degree of inflammation with which it is is attended. Patients are often very much frightened and fancy they have some terrible disease coming, though it is really very light and will require little or no treatment.

In most of its forms it is an acute affection. It begins, perhaps, with feverishness, and a great degree of smarting and tingling of the surface. The skin looks red, and clusters of vesicles then appear. It lasts from one to two weeks. These vesicles occur in clusters, one after the other. Many of those eruptions that appear suddenly on the skin are of this description. At first, the contents may be clear; but they soon become opaque and yellow. The scabs we often see about the mouths of children are nothing more than herpes.

When this eruption appears around the waist, it receives the name of Herpes *zoster* or *zona*. In common language it is called shingles. In some cases the patient is a little indisposed at first. He has a slight headache and feverishness. Again, there is no previous indisposition. When it occurs in separate clusters and does not run round the body, it is called herpes *phlyctaenodes*.—There is no difference in these two species except that the former has a disposition to reach round the body, while the other remains in separate clusters. At first there is smarting and tingling and then great itching.

If it occur on the prepuce of the male, it is called herpes *preputialis;* if on the lip, it receives the name of herpes *labialis.*

When the patches assume a circular form with the vesicles only on the circumference, we call it herpes *circinatus* or common *ring-worm.* The great use of describing this form is that we need not confound it with other forms of disease that are more serious.

There is a form mentioned by Dr. Bateman which is quite rare. He called it herpes *iris;* because there were almost all the colors of the rainbow in it, as each patch assumed a different hue.

Treatment.—In the commencement of the complaint almost any simple application will cure it. A little of our Antispasmodic tinct. or Hot Drops. A strong decoction of the Dock, (*Rumex Crispus,*) applied will often kill it at once. If it is obstinate, the juice from the hull of the walnut, while green, will affect a cure. This juice can be saved in alcohol and kept for years. It is an excellent escharotic for any of those scaly or herpatic eruptions.

If this affection becomes corrosive, or if it does not yield to the above treatment, the vapor bath must be administered and an alterative course pursued. Astringent poultices, as the pond lily (*nympha odorata*) and others, with ginger, slippery elm bark or flax seed, may be applied with the happiest results.

An application that will prove favorable in one case of pustular tetter, will act unfavorably in others, so that it is not always an easy matter to select the proper remedy in each particular case. To protect the parts from the air is an essential part of the treatment in all cases. The following is a popular remedy for tetter:

Take an ounce of pounded yellow dock root,
Half a pint of sweet oil,
Half a pint of spermaceti oil,
And a pint of vinegar.

Stew these together until the vinegar is all evaporated. To be applied two or three times daily, and the parts covered with some kind of dressing to exclude the air. In some cases of pustular, or running tetter, all kinds of salves and ointments disagree, aggravating the disease and causing it to spread rapidly, In such cases the parts should be dressed, and wet occasionally with salt and brandy, tincture of myrrh or the tincture of bayberry. If these should not prove a benefit, and the eruption be located on the hands or on parts that will admit of it, bind on scorched flour, dry slippery elm, prepared chalk or charcoal, in order to absorb the acrid discharges from the sore.

Treatment of Eating or Corroding Tetter.—This variety of tetter demands a more active course of treatment, especially where there is a tendency in the disease to spread rapidly. A full course of medicine should be given and followed by the usual stimulants and astringents, such as composition, ginger, capsicum and bayberry, in order to promote perspiration, and to correct the secretions of the stomach and bowels.

The yeast poultice, or a compound of white pond lily, elm and ginger, wet with a strong tea of raspberry leaves, to be applied to the parts affected, and renewed at proper intervals until the ulcers assume a healthy appearance, when the salve or ointment may be used as recommended in pustular and dry tetter.

Prof. Curtis recommends the escharotic remedies to be prepared in vinegar of some vegetable acid, as this seems to kill the virus or corroding humor which is extending in the tissues immediately under the skin.

When the eruption proves obstinate under local application, it will be proper to use constitutional treatment. Take a dose of composition or spice bitters, two or three times a day; or, a teacup half full of composition tea, mixed with a teaspoonful of purified charcoal, may be taken night and morning. Lime-water, in milk, answers a good purpose, taken two or three times a day. A course of medicine, however, is the most effectual means of cleansing the system of all morbid humors.

Eczema.—The next disease to which we call your attention is very much like herpes, but it differs from it in having little or no inflammation. The eruption of eczema is larger than *miliaria*, but resembles it in other respects. It is produced in most cases, by mercury, and hence it is an eruption peculiar to those who have taken this poison. It is sometimes very severe, extending over the whole body, and proving fatal. We find the mucous membrane affected, and there is almost a cough. The throat is more or less affected, and there is frequently vomiting and purging.

There is a species of this disease, called, *eczema impetiginodes* which runs into a pustular form, and then it is liable to become chronic, and may last a considerable time. This form does not have the same amount of inflammation as the eczema *rubrum*, which is produced by mercury. It resembles impetigo very much, and is classed by most writers as this disease.

The vesicles of this form are quite purulent and soon break, and the fluid concretes into soft, yellowish, and often extensive

scales, or their crusts. When these fall off, they leave red surfaces, exuding a redish fluid, which dries into their laminæ. The eruption is commonly confined to a particular part, or even a single spot. Occasionally, however, it occurs over the whole body, and is attended with considerable fever. This disease may continue from ten to twenty days and upwards. The vesicles are transparent at first, and become pustular afterwards. This variety also sometimes assumes a chronic character, resembling then, the chronic state of eczema *rubrum*, or more appropriately the eczema *mercuriale*.

There have been some instances in which this disease is said to be contagious, and to have been communicated from one to another by protracted contact. It is said sometimes to be caused by direct irritating applications to the skin, as blisters, sinapisms turpentine, the rays of the sun, dry frictions and irritative ointments.

This affection often resembles the itch at first. But we may distinguish it by the following circumstances. In eczema the vesicles are flat or rounded: in itch they are pointed: in the former they are nearly or entirely in contact with each other: in the latter they are single and considerably separated. The itching of the eczema is attended with smarting pain, in itch the pruritus is rather agreeable than painful.

Treatment.—The treatment of this form of disease, does not differ from that of other vesicular eruptions. If it has been caused by mercury, we should use especially the vapor bath and emetics with alterative treatment.

It is well to give the patient the utmost supply of fresh air; to open the windows and doors and to ventilate the room as much as possible. As the smell from the discharge in many cases is very disagreeable, it is well to sponge the surface often with alkaline solutions, and use every means to keep the patient perfectly clean.

It is necessary to support the strength—to give nutritious broths, plenty of milk and use every means to keep up the strength of the patient—hence we must beware of drastic purges, but use enemas, or very mild aperients.

In severe cases, where the eruption is extensive, a wash made of a strong infusion of lobelia, bayberry and bloodroot, will be found to be beneficial. Diaphoretic teas may be administered during the treatment.

Psora or Scabies—Itch.—This disease is named as above,

from the Greek ψωω and Latin *scabies*. It is first seen about the thumbs, the wrists and ancles, and between the fingers and toes. Particularly, however, at the roots of the thumbs. If it is not there there may be a doubt whether it is the itch or not. It breaks out on the front of the body, on the chest and in the axilla. It seldom or never shows itself in the face. The reason for this remarkable fact we are unable to divine. This disease is attended with an intolerable itching. King James I. of England is said to have observed that, no subject deserved to have it, on account of the great pleasure derived from scratching the affected parts. We presume, however, that the king's *subjects* were perfectly willing that this *pleasure* should be alone enjoyed by kings.

This affection may last for years, as it seldom tends naturally to a cure, or at least the efforts of nature are seldom successful. It is attended with no danger except to young children.

There has been considerable dispute among our physiologists, respecting the cause of this disease; but it is now ascertained to be the presence of an insect, the *acarus scabie*, at least the insect is always found in the vesicle, though some even now contend that it is formed after the vesicle, and is rather a consequent than a sequent of the disease. Some Italian and French physiologists have declared that the *acarus* is to be found not in the vesicle, but at the end of a small reddish furrow, sometimes straight, sometimes crooked, about two lines in length, which begins at the vesicle, and finishes with the insect. A minute sublenticular spot is often perceptible near a distinct vesicle: on raising the cuticle with a pin, a small, white corpuscle, which moves when lifted with the point of the pin, becomes visible, this is the *acarus*.— It is contended, therefore, that the serosity in the vesicle does not appear sufficient to produce the itch, but that the *acarus* immediately produces the vesicle. Though this is not a dangerous disease, yet it is a very troublesome one; and it is held in great abhorrence. If we tell parents that their children have got the itch, they are often indignant, or hold up their hands in horror, as though they had the small pox.

This is an exceedingly contagious disease, though it cannot be communicated by the atmosphere; requiring contact. It is more commonly caught by sleeping with a person laboring under it, than by any other means.

If the eruption is of a watery character, the disease is called scabies *lymphatica*; if it is very rank and resembles pimples, it

is called scabies *papuliformis.* These distinctions are not very important. It is well, however, to know that this disease is sometimes characterized by large flat looking pustules; resembling anything but the little vesicles which are seen in other cases. This is called, in common language *pocky* itch, or scabies *purulenta.* This form may be mistaken for something else; but if these pustulous eruptions are seen about the roots of the thumbs and between the fingers and on the back of the hands and wrists, we may be pretty certain it is psora.

Treatment.—The treatment consists in destroying the acarus as soon as possible. According to experiments made by M. Albin Gras, a concentrated solution of the hydriodate of potash kills this insect in the shortest time. It lives sixteen hours in vapor of burnt sulphur, three hours in water, two hours in olive oil, one hour in the acetate of lead, one hour in pulverised brimstone, three quarters of an hour in lime water, twenty minutes in vinegar and spirits of wine, and only from four to six minutes in a solution of hydriodate of potash. The ointment of this substance, in the proportion of about half a drachm to an ounce of lard may be considered as the best application to the affected part. We may also take half a drachm of the sulphuret of lime, mixed with a little olive oil and rubbed upon the palms of the hands twice a day, for ten or fifteen minutes each time, will also affect a cure. If this affection runs on for a long time it may produce a derangement in the constitution, and it will be necessary to use some general treatment. Ulcers and sores of various kinds result from this affection.

Sulphur is considered a specific for this disease. Five or six parts of Lard to one of sulphur rubbed over the affected part will cure in a few days. As this application is objectionable on account of the smell, it can be almost wholly disguised by a little lemon oil.

Perfect cleanliness must be enjoined, as the want of this often causes it. The Liquid amber (sweet gum,) of the South or the Rumex Crispus, (Dock,) will produce a cure as soon as any thing else.

The following is said to be an effectual cure in this disease: Half an ounce of muriate of ammonia, mixed with two ounces and a half of water. The affected parts to be washed every day with the mixture.

Another preparation: Mix together one drachm of sulphuric acid, and one ounce of lard, and apply to the joints.

Porrigo, Scald Head.—Description and Causes.—This is a contagious disease, but not infectious. It is commonly caught by children sleeping in the same bed, rubbing their heads upon the same pillow, or wearing the same cap.

It may arise from uncleanliness, or from a want of a due proportion of wholesome nourishment, and possibly from bad nursing. It takes place far more frequently in children than in others; and it often cures itself when the physician gets the credit of it.

Diagnosis.—In this disease, the pustules are either small, with pointed tops; or large and flat. It sometimes occurs in distinct patches, and it is then called porrigo Scutulata. There has been much confusion in the writing of many authors on the pustulur affections of the hairy scalp. Willan and Bateman, under the titles of porrigo and perriginous eruptions, have described porrigo as a contagious pustule; and at the same time and under the same head various eruptions, many of them not contagious, are jumbled together. The form called porrigo lupinosa and porrigo scutulata, are alone contagious; the other forms are not so, as porrigo favosa, porrigo furfurans; these are scaly eruptions, and should come under the head of eczema or herpes. There is also another form called porrigo decalvans; and this has no pustules and hence does not come under this class of affections. We have noticed this form among the young negroes in Georgia, and it is called scald head, by all physicians. In fact there is a disposition to call every kind of disease that attacks the hairy scalp, as porrigo, or scald head. When an eruption, however, occurs on the scalp, of a pustular kind, and lasts some time, we may begin to think it is porrigo, but if we ascertain that the pustules are small, or large and flat, we may be sure of the nature of the disease.

There is an eruption which originates behind the ears of babes, which sometimes extends up into the hair, that should not be confounded with this disease, it is simply a humor occasioned by heat or chafing, and lasts only a few days if properly treated.

Treatment.—We may commence the treatment of this unpleasant disease by anointing the head with oil or fresh butter, and a bladder may be drawn over it. This will soften the scabs and prepare the head for further treatment. After twenty-four hours the head may be washed with soap-suds, and most of the scabs will come off, if the hair has been properly shaved off previously. Let the scalp now be washed with a strong tea of bayberry, lobelia and pond-lily. A little tincture of myrrh may be added, or the head may be washed alternately through the day

by a decoction of these articles separately. If the bowels are costive they must be relieved by injections, or mild purgatives. Alteratives, especially the sarsaparilla, must be freely used. This course will prevent any termination to the brain, or any unfavorable symptoms from the use of external remedies. The tar cap is a favorite and quite successful remedy among the negroes at the South.

Diaphoretic teas should be taken in order to keep up a free termination to the surface. A little sulphur and soap, or lard, spread lightly over the scalp and then covered by the cap, is a good remedy. One drachm of subcarbonate of potash to an ounce of lard or fresh butter is a valuable ointment after the washing. This can be omitted when it has fully softened the parts. The warm and vapor baths are useful adjuncts. The greatest care is to be taken to prevent the fluid which is exhaled from the excoriations being carried over the adjacent parts, the contagious nature of this fluid having certainly some influence on the obstinate reappearance of the pustules; and this is only to be prevented by great cleanliness, and the repeated use of weak alkaline washes.

Some mild escharotics may be used if the common astringents do not succeed, such as the blood root, (san. can.) tincture in vinegar, with myricine sprinkled over the scalp. This will seldom fail of curing the disease. Sanguin may be the best form of the blood root, but we have never had a chance to use it yet.

In bad cases, a sweat and an emetic should be given every week or oftener, as the symptoms indicate. This will greatly facilitate the cure. Lobelia, given in small doses, is of especial benefit in all kinds of eruption. It may be given in pills, or in tincture, several times a day, in quantities merely sufficient to excite slight nausea.

The composition powder, mixed with sugar and warm water, should be taken once or twice a day, more especially if the tongue be coated. The bayberry or sumac tea may be used for the same purpose.

The spice bitters, or any other simple tonic may be given to strengthen digestion.

Extract of Pipsissewa, given in the form of pills is a favorite medicine with some practitioners, in eruptive complaints.

Costiveness may generally be relieved by proper articles of diet, as stewed prunes, gruel made of unbolted flour, with the addition of a few raisins, stewed figs, rye mush, roasted apples, and

ripe fruit in season. The diet of course is not to be confined to such articles exclusively.

The following preparation may be used in the place of the external application above mentioned:

Liver of sulphur, three drachms,
Spanish soap, one drachm,
Lime water, eight ounces,
Rectified spirits of wine, ten drachms.

To be mixed and melted together, and applied to the affected parts night and morning.

Acne.—This is a very slight and very common affection. It occurs, particularly, in young men and women, and prevents them from looking very handsome about the period when they should look the best. It derives its name from the Greek ακνα, pimples on the face. Although hardly worthy a place or name in a medical work, yet Willan divides them into three species, acne simplex, acne punctata, and acne rosacea. The acne simplex, is where the eruption is not very numerous and without inflammation, the spaces between the pimples being perfectly healthy, with the exception of a little roughness of the face. In this form there is sometimes a great hardness, and then it is termed acne indurata.—Where we have sebaceous follicles large and distinct, and marked with a black speck on the top, it is called acne punctata. By squeezing them we force out what is called the worm, but it is only the sebaceous follicle, with the external extremity blackened by exposure to dust, etc. The seat of this affection is on the face, especially about the forehead and the alæ of the nose.

When it occurs with considerable surrounding redness and prominence of the skin, so that we may discover each particular vessel, it is called acne rosacea. We see this form in middle-aged and old persons, and it is indeed quite troublesome, and is not easily cured, as it is almost always connected with tipling. These hard, inflamed pimples of the skin may, and sometimes do, suppurate; hence we class them among the pustulæ.

Treatment.—There can be no doubt that, when these pimples are small, it is much the best practice to squeeze them, and empty the contents. If this be done the tubercle will, for the most part, subside; and if they suppurate, the sooner the matter is let out the better. We are not aware that external remedies have any particular effect on the disease. We suppose any remedy that will get up a healthy action in the skin, will cure this complaint; hence the vapor bath must be valuable, and perhaps some mild,

stimulating, alkaline wash, with perfect cleanliness, will be all that is necessary.

Sycocis.—This is a form of disease which affects those parts of the face which are covered by the beard. It receives the name of Sycosis, from the Greek συκον, a fig, from its appearance when ulcerated. When it occurs on the chin, it is called sycosis menti. When it occurs about the margin of the hairy scalp it is called sycosis capillitii. There is no occasion to make this distinction because it occurs in different localities, any more than calling rheumatism by different names, according as it attacks the knees or shoulders.

The tubercles, in this disease, are not so hard as in acne, and they suppurate much sooner. It makes shaving a very unpleasant operation, even when we have a good razor, good strop, good soap and warm water. It is sometimes quite obstinate to cure, especially as it is most frequently found in broken down constitutions and on those accustomed to habits of intemperance.

Treatment.—Alterative treatment is indicated in this disease. Good tonics have been found beneficial, especially iron. As there is often considerable inflammation, cold water will be found particularly useful. Let it be applied in the hydropathic form, and assisted by some good diaphoretics, and the cure will be hastened.

Stimulants and astringent washes, after shaving, may be found valuable, and should be used often ; the diet regulated, and temperance strictly enjoined.

Pustulæ—Sty, Boil, Furunculus, Carbuncle, or Anthrax. —The most simple affection of this kind is the sty of the eye. A more severe one is a boil in which there is a disposition to gangrene ; and another is a carbuncle, in which there is a strong disposition to gangrene; though carbuncle is only a large boil, but it is often of such extent as to require aid to let out the matter.

The boil is termed furuncnlus. It is a hard circumscribed and exquisitely painful tumor, generally appearing under the figure of a cone, the base of which is considerably below the surface of the surrounding skin. The matter is generally slow in forming, and is seldom found in very large quantities.

The carbuncle is called anthrax; it is of a dusky red purple color ; there is often an extensive areola of a brownish hue. It usually commences with a small pimple, which runs deeper and deeper into the cellular membrane, until the base becomes extremely broad. In low, exhausted, and cachechtic constitutions, we may find this affection to come on with rigor, sickness, fainting, suc-

ceeded by great prostration of strength, languid pulse, typhus symptoms. It is sometimes accompanied with a mililar eruption, or with petechiæ dispersed in different parts of the body. The progress of the carbuncle to the gangreneus state is some quicker than the furunculus. The size is various. Considerable local pain and induration always attend this disease. As it advances several apertures generally form in the tumor, and through these openings there is discharged a greenish, bloody, fœtid, irritating matter. The internal sloughing is often extensive, even when no signs of mortification can be outwardly discovered.

In the prognosis of this disease, we must regard the magnitude and situation of the tumor, the number of swellings, and the age of the patient, and the state of his constitution.

Treatment.—In most cases all the treatment required will be a mucilaginous poultice, during the inflammatory stages, till suppuration takes place, and then our common healing salves, or cold water, may be frequently applied; cloths wrung from cold water kept upon the inflamed surface, will often give ease to the patient and afford relief. In more severe cases, fomentations of bitter herbs will give immediate relief from suffering.

In all cases where the constitution is implicated, we must depend upon tonics, the bath, and such general treatment as we have recommended in similar cases. If the carbuncle assume the character of an old ulcer you will treat it with stimulating washes, astringent poultices, and the same manner we have directed for ulcers of this description.

Perhaps there is nothing which will afford more speedy relief to the throbbing and stinging pain which is so common an attendant on the carbuncle, as bathing it often with the third preparation, and at night apply a poultice sprinkled with cayenne pepper. These stimulating applications seem to assist the recuperative powers to produce resolution, or aid the system in throwing off the morbid secretion.

Constitutional Treatment will be required in all cases of carbuncle, employing means to correct the diseased condition of the general health, and to strengthen and support the constitution.—In the first place, the patient must be carried through a full course of medicine every few days, and during the intervals use freely of composition, pepper or spice bitters. As the constitutional symptoms wear a more favorable aspect, cleaning of the tongue, a general warmth through the body, with a moist skin, then tonics, such as bark and wine, quinine, gentian, columbo, and Virginia

snake-root, must be given freely, and the patient allowed a nourishing diet—eggs, milk porridge, custards, beef steak, mutton chops, boiled chicken, wild game, stale bread, cream toast, etc.

When the state of the weather and the condition of the patient will admit of it, he should ride or walk out, to receive the benefit of fresh air and exercise, observing especial care, however, to keep warm.

Pestis—Plague.—*Pythological Description and Causes.*—Plague is very similar to typhus, but it so affects the surface of the body that it may well be reckoned among the pustular class of affections.

The phenomena attending the development of plague during life, and the lesions observed after death, do not enable us satisfactorily to decide upon its proximate cause or nature. As this is a form of disease confined almost exclusively to the old world, and not seen upon this continent, we will not enter very far into the various speculations that have been made on the subject, but confine our remarks to an abstract of an opinion entertained by Craigie and Buland, as being the most consistent and in accordance with our own views.

The former of these writers applies the general view which he advocates, namely, that the disease arises from a derangement of the capillary system, that the remote material agent which causes it, whatever it may be, acts upon the capillary vessels immediately or secondarily through their contents, in every tissue and every organ of the human body; the result of which is, that the fluids are no longer freely transmitted through them, so that there is produced a sudden and almost immediate retardation of the motion of the blood through the capillaries of the whole system. First, The arteries of the brain and the investments of the stomach, of the intestinal tube, and of the secreting glands, are distended with dark colored semi-fluid blood. Second, The vessels are loaded with dark colored fluid blood in all the organs, and this will escape immediately on the smallest incision. Third, In several of the organs, nay even in the muscles, dark colored, half coagulated blood is found in clusters of vessels, so as to form dark or carbonaceous patches and masses. Fourth, Dark grumous blood is found, not only in the right chambers of the heart, but in the left auricle and ventricle, in which they are not usually found in ordinary death.

Bulard states that this disease is caused by the contagious product of lymphatic absorption. This view he grounds upon the statement, that the only symptom which has been remarked as

alone and distinct from any other at the commencement of the disease, is pain in the lympathetic glands. This is at first but a slight throbbing, becoming more violent and continued, and ultimately succeeded by swelling and buboes. This change in the lymphatic glands is the only lesion which is to be found totally isolated from all others, and it is consequent upon changes in the lymph, and therefore each, during the local affection, is to be considered only as consecutive to this disorder in the lymphatic system, in which consists the simple original affection, the essence of the disease, and without which no general disturbance could have occurred.

The lymphatic ducts, whether going to or from the gland, are not diseased, but the glands alone are affected. Therefore it is evident that the malady is not conveyed by continuity of tissue, but the diseased principle is introduced into the lymphatic circulation, and therefore the alteration of the lymph is cause and reason sufficient for the phenomena of diseased absorption, the pathological effects of which are displayed on the glands. The disease, therefore, arises from a change in the lymph. This constitutes the primary affection, the secondary effect of which is, that, as this degeneration of the lymphatic fluids become more or less advanced, the blood itself becomes decomposed by the morbid lymph entering into its composition by the venous circulation. It thus loses its normal qualities, and then causes a general disturbance—a deep disorganization in all its functions; in short, all the derangements of a poisoning. From this moment it loses its physiological character, and assumes one entirely peculiar to itself, and hence we can explain the lesions met with throughout the system, such as the livid color of the stomach, the swollen state of its mucous membrane, the softened state of the spleen, gorged as it is with black grumous blood, the congested liver, and the softened condition of the heart; in fact every lesion found on post mortem examination.

Diagnosis.—The general resemblance which plague bears to those malignant forms of Typhus fever, which are occasionally witnessed in cold countries, must be abundantly obvious. The great distinction between them lies in the occurrence of buboes; in other words, in the tendency which plague has to affect the lymphatic system.

The latent period of the contagion of plague, and the appearance of the symptoms varies in different cases. It is scarcely ever less than three days, and seldom exceeds six. It spreads to a very small distance only from the body of the patient; the consequence

of which is, that the disease is seldom, if ever, communicated except by actual *contact*. The dead body does not communicate the disease so readily as the living. It may be taken by inoculation.

Like many other affections of the skin, it has no acute fever, attended by headache, delirium, and a burning sensation at the epigastrium. Perhaps there may be great strength of body at first; the person may be of a full phlogistic diathesis, but great debility soon comes on, and there may be debility from the first. Glandular swellings speedily appear in the arm pits and groins, so that the disease is characterized by buboes; but the glands of the arms are more frequently affected than those of the arm pits.—Sometimes these glandular swellings, or buboes come on at the first, and sometimes not till the end of the complaint. Besides these buboes there will often appear upon the surface, vesicles of various sizes; the contents of which are frequently dark. There are upon the surface boils, carbuncles and vesicles, and between them, and even where they do not exist, there are often vibices, petechiæ and ecchymoses. These petechiæ, it is said, will sometimes rise into carbuncles; where at first there was merely a little effusion or congestion of blood, there will sometimes, at least, be carbuncles. Occasionally there is not sufficient power of the constitution, not sufficient fever for carbuncles and buboes to arise.—Just as in the case of the violent application of malaria, or the violent application of the poison of typhus fever, and also as in cholera, persons will sometimes die immediately without any reaction taking place

The most striking symptom is the staggering and the sudden and extreme prostration of strength. There is a strong tendency to void the urine. The stomach is very irritable, the tongue is white and moist, the speech falters. The head is sometimes perfectly clear and collected, and again stupor occurs immediately after the first symptoms. The buboes form after one or two days, where they form at all, then in more than half the cases we only have petechiae and vibices. The duration of the disease is various. There are few cases where the patient dies in a few hours from the invasion. The third and fifth day are those of the greatest danger, if the patients outlive this period, they generally recover.

Treatment.—From the various accounts which we have of this disease, it is evident that it requires the most energetic and thorough treatment from the first.

After cleaning the stomach with lobelia and the bowels by enemas, and thus exciting a determination towards the skin, the cuta

neous action is to be maintained by diaphoretics and the vapor bath, and if the pathological notions be correct, which we advanced, that this is a disease of the lymphatic, we must act particularly on these organs, by medicated baths, frictions and other means to promote the absorbents to action. A strong decoction of lobelia applied all over the surface, till free emesis is produced, must act beneficially, The third preparation, must be a most valuable article for external bathing of the surface. Particular attention should be paid to the local treatment of the buboes. They are never discussed; it is best, therefore, to use such means as will hasten their suppuration, such as poultices, etc. Tonics and stimulants combined are necessary, as recovery advances.

Erysipelas — St. Anthony's Fire. — *Description and Causes.*—This term, Erysipelas, is derived from two Greek words, (ερυω, to draw, and πελας, adjoining,) because there seems to be a tendency to draw the surrounding parts into the same state.—Some authors have defined it to be a cutaneous inflammation, attended with redness, which disappears and leaves a white spot for a short time after being touched with the end of the finger.—Some writers contend that the seat of erysipelas in most cases is in the very surface of the cutis its most vascular and nervous part; we have little doubt, however, but the disease extends more deeply and not only affects the subjacent cellular membranes, but soon is carried to every part of the system.

We know little about the *immediate* cause of erysipelas, and even the *predisposing* causes are often very obscure. The long continued excitement and disturbance of the stomach, alimentary canal and liver consequent on intemperance and excess, has often induced this disease. We find the bilious and digestive systems more or less disordered; hence Desault denominated one species *bilious* and another *phlegmonous.*

Blisters and all external irritants, heat cold, issues, setons, caustics, wounds, fractures, bruises and all surgical operations, may produce erysipelas when there is a certain state of the system or certain condition of the blood. According to Mr. Lawrence, simple erysipelas and a large portion of exanthematous affections, are sympathetic, particularly from the disorder of the primæ viæ or liver, hence the bilious or gastric; while the phlegmonous is most commonly produced by wounds, injuries especially of the joints, inflamed ulcers of the legs, etc., and where a full diet is indulged in.

This disease seems to be dependent on the state of the con-

stitution, for we find it more prevalent in Autumn, or in any season when hot weather is succeeded by cold and wet; it attacks both sexes, but women are thought to be more subject to it than men.

Diagnosis.—The part affected with this disease is of a bright red color, clear and shining, it is not accompanied by throbbing, a burning heat and tingling sensation are felt, rather than acute pain. We rather prefer the division of the French to that of some late modern writers. *Phlegmonous*, *bilious* and *local* will include all the necessary symptoms, other terms like œdematous and gangrenous, etc., are unnecessary, since every variety may be included under these. In the phlegmonous variety the skin is more raised than in the simple form, the swelling is harder and deeper and of a darker color; the redness has often a brownish or dark livid tint, and the discoloration is sometimes of a marbled appearance and quite irregular, vesications often minute and miliary form on the surface with purulent contents, and then often a sloughing of the cellular membrane soon comes on, and the febrile symptoms are aggravated. The fluid gradually becomes yellow and purulent, and we often find it presenting all the characters of good pus, and very thick.

In many instances just before the appearance of the redness and sometimes during the several previous days, the patient experiences considerable indisposition, loses his appetite, he has shiverings and violent pain in his head, accompanied sometimes with vomiting and always with weakness and dejection. Frequently bilious complaints occur, attended with a bitter taste in the mouth and fœted eructations from the stomach. The tongue is moist, and covered with a yellow mucus, these symptoms are followed by a dry and parched skin, constipation, an accelerated pulse, thirst and other febrile symptoms. If the head is the seat of the difficulty we may have coma, delirium, etc. The above are the most common signs of simple erysipelas; the phlegmonous form of this disease have the following symptoms:

The patient complains of more or less trouble about the region of the heart. The heat is often accompanied with a little delirium, and almost always with drowsiness of a more or less evident kind. The swelling generally makes its appearance on the second night or the third day of the fever, attacking the forehead and the cheeks, the nose or eyelids. The swelling is elastic and smooth, but it is not distinctly circumscribed, and it gradually spreads over such parts of the face as were not at first af-

fected. The skin becomes of a bright red color with a tendency to a livid hue; there is a burning heat and a disagreeable pricking in the part rather than any acute pain. The surface of the tumor is shining and without hardness or tension or throbbing; the eyelids are often so swollen as to produce blindness, and the whole countenance is exceedingly disfigured. We quote from Dr. Wood, the following:

"*Epidemic Erysipelas—Black Tongue.*—The newspapers, a few years since, teemed with accounts of a destructive pestilence, appearing in remote and unconnected portions of the country, which, from one of its prominent symptoms, came to be known by the popular name of *black tongue.* Several accounts of the disease have been published in the medical journals.

The disease very often began with difficulty of swallowing from inflammation of the fauces; and, if otherwise, angina was very apt to ensue. The first general symptoms were feelings of lassitude, pains in the back, loins, extremities, head, etc., nausea and retching, a frequent and depressed pulse, a fetid breath, cold and contracted skin, shrunken features, anxiety of countenance, and rigors more or less severe and protracted. The pains were often exceedingly acute, like those of neuralgia, shooting through various parts of the body and sometimes darting from a finger or toe, the heel, etc.; and it was observed that the limb thus affected was apt to become the seat of the subsequent inflammation. After a variable continuance of some or all of the above symptoms, occasionally extending to twenty-four hours or longer, febrile reaction came on, with a hot skin, frequent pulse, great restlessness and anxiety, delirium, furred tongue, etc. In the erysipelatous cases, the cutaneous inflammation appeared generally on the third or fourth day, though sometimes not earlier than the seventh. It was no uncommon event for the eruption to disappear suddenly; and this was generally an unfavorable sign. The inflammation had a strong tendency to gangrene, was not unfrequently attended with phlyctenoid or carbunculous tumors, and often ended in great destruction of the cellular tissue, muscles, lymphatic glands, etc., which were discharged in a mortified state, with a thin, exceedingly acrid, and offensive liquid.—So corroding and acrid was the fluid, that the hardest steel was directly penetrated by it as by nitric acid. The fever, though at first inflammatory, with considerable strength of pulse, quickly lapsed into the typhus state. The tongue, at first covered with a gray or yellowish coat, became brown or blackish as the dis-

ease advanced. Hemorrhage was not uncommon in the latter stages. In some cases, the nervous symptoms were predominant, and occasionally the disease commenced with coma, from which the patient was never roused. When the erysipelatous affection did not appear, and sometimes along with it, there was violent internal inflammation. The mucous membrane of the fauces, mouth, nostrils, etc., was especially apt to suffer; and sometimes the swelling and pain in the throat, tongue, etc., were so great that deglutition was impossible. Occasionally the inflammation extended downwards into the air passages of the lungs, the stomach, and even the bowels, or upwards into the nassal passages and the brain. Peritonitis and pleuritis were not uncommon, and were extremely fatal. In some places, pneumonia was also a frequent complication. The duration of the complaint was very uncertain. Sometimes death occurred in two or three days, but more frequently about the eighth or tenth day, and occasionally much later. Convalescence frequently took place in about a week or ten days, as in ordinary erysipelas, but often also it was greatly protracted."

Treatment.—The milder forms of this disease may be cured by very simple means, such as diaphoretic teas and mild purgatives, light diet and an occasional lobelia emetic. For local application, sweet oil and lime-water will afford relief. We shall not advise the usual treatment so often recommended in the old school books, of cutting and laying open the erysipelastous tumor, while such treatment may afford temporary relief, yet it should seldom be practiced.

We have often found cold applications to be beneficial besides affording great relief from the pain.

We must keep up a good determination to the skin. The bowels should be regulated by enemas rather than with purgatives. If we are called to the case after the blisters have degenerated into ulcers, they should be poulticed with slippery elm and bathed with the decoction of Pond Lilly, Bayberry or Witch Hazle, or the following formula:

R. Ulmus Fulv. (Slippery Elm.)
Lobelia Fol. (Green Lobelia.)

Crackers—equal quantities made with hot water, and when cool applied.

To keep up a general termination to the surface, the following powders should be given:

R. Asclepias Tub. (White Rt.)
Scutilaria Lat. (Sculcap.)

Composition—each 1 oz., steeped in one qt. of hot water.—Dose, a wineglass every hour.

The tincture of muriate of iron has gained considerable reputation, and it is not objectionable in our practice. Dose—from 15 to 30 drops every two hours, and it may be applied externally to the sore.

One of the best tonics to be used during the treatment of this disease is the Goldenseal.

R. Hydras Can. (Goldenseal) 3 oz.
Popul. Term. (Poplar) 1 oz.

Put in one quart Port Wine and when well digested take half wineglass three times a day.

As there is sometimes a tendency in this disease to assume a remittent character, we must add quinine to the above bitters, 20 grains to the quart will be sufficient.

Let the whole surface of the body be freely bathed with ley-water, and a good action on the skin constantly kept up, and it will also be desirable to give some mild diuretic, as the kidneys will eliminate much morbid matter; hence we may give one tablespoonful of Fluid extract of Tarax, and Senna, as prepared by Tilden & Co., as this acts very well both on the bowels and kidneys. Or a pill made by mixing Powd, Pod. Peltatum, (Mandrake) with Ex. Tarax, (Dandelion)—Dose from 2 to 4 at night.

When the surface is raw and the skin abraded, you will find powdered slippery elm, or burnt flour to be among the best external remedies. If a crust forms on the surface, let the mucilage of the elm be often applied and the cloths changed frequently.

The following judicious treatment from J. S. Prettyman, M. D., of Delaware, one of the most accomplished among our Reform Profession, is worthy the attention of all Physicians. For malignant erysipelas he says: For several days maintain a moderate action of the liver and bowels by the use of the following:

R.—Podophyllin, (Mandrake).
℞ Sanguinaria, (Bloodroot,) a. a., - 10 grains.
Leptandrian - - - 20 "

Make in 20 pills.

Let one be given every three, four or five hours, as may be found necessary to maintain a moderately free action of the liver and bowels.

In connection with these administer the following:

R.—Tr. Ferri Chloridie, (Chloride of iron), 1-2 ounce.
Quinia Sulphatis, (Sulp. Quinine) - 2 scruples.

Mix.

Give from ten to twenty-five drops of this mixture in a wine glass full of cold water three, four or five times per day alternately with the pills.

Once or twice per day apply the Tincture of Iodine, or some other powerful stimulant, locally. If suppuration commences, or there are indications of the formation of pus the Bystory or Scalpel must reach and evacuate it.

I. H. Hand, M. D., of Georgia, has sent us the following as his treatment of this disease, we have no doubt that it is efficacious.

Where there is much fever nausea and vomiting, the first indication is to relieve the alimentary canal of its morbid accumulations, which may be fulfilled by an emetic, succeeded by a very quick cathartic. The simple tincture of Lobelia is preferable on account of its febrifuge quality. This must be administered at short intervals until the stomach is thoroughly evacuated. This should be followed by a mild cathartic, half a grain of Podophyllin with three grains of Leptandrin within four hours. Take half a pint of strong infusion of ginger, dissolve in this half a drachm of bitartrate of Potassa (cream of tartar) sweeten to suit the taste. This dose should be repeated every eight hours until both bowels and kidneys begin to act. If nausea is still present administer the neutralizing mixture until the stomach is quieted. Now administer Lobelia in small doses until perspiration is induced, and the fever diminished. Then administer sixteen grains of Quinine, divided into four doses, in the space of eight hours. If the eruption or inflamed spot has occurrred, the local treatment must now be brought in requisition, which consist of applications, tepid and cold, poultices, lotions, etc. Tepid applications are grateful in almost all cases, especially when there is much swelling. Sometimes a little spirits of any kind will relieve the burning sooner than any other application. Or moisten with spirits and dust over with prepared chalk. When there is much swelling, the elm poultice is perhaps the best local application that can be made, esspecially if it is about to end in suppuration.

The practice of drawing a line around the local inflammation for the purpose of stopping its progress is certainly useless as the caustic does not penetrate beyond the depth of the inflammation, that of blistering is not only useless but injurious. After depuration has been effected by the means already prescribed, the muriated iron should be exhibited in rather larger doses than under ordinary circumstances, from 15 to 25 drops from three to four times

per day. I have taken it in from 15 to 20 drops doses with much benefit. The bowels should be kept open with the Bitartrate, Potass, as above directed.

The local affection should be kept elevated as much as convenient.

If the discharges should become watery, the Bit. Pottasse should be discontinued, and Podophyllin and Lept. exhibited in broken doses; one grain Podop. combined with one grain of Lept. every six or eight hours. If the typhoid symptoms supervene, the treatment of that form of disease should be adopted.

The diet should be light and nutritious, consisting mainly of animal broths.

When ulceration occurs it should be treated with very mild cerate or ointment, any thing that will exclude the atmosphere without irritating the sore.

FORMULAS

RECOMMENDED IN THIS BOOK, AND OTHERS WHICH ARE CONSIDERED VALUABLE.

COURSE OF MEDICINE.

This includes the application of the vapor bath or steaming, to promote perspiration; the administration of an emetic to cleanse the stomach; injections to relieve or evacuate the bowels.

The use of vapor or steam is of very remote origin, having been used by perhaps nearly all the nations of ancient times; and is still resorted to by some of the rude, as well as more polished nations, of the present day.

In Russia, as has been shown, the vapor bath is very extensively used, and also more or less in other nations of the European continent.

ANTI SPASMODIC TINCTURE—THIRD PREPARATION.

Take of Tincture of Lobelia .....1 pint.
Tincture of Capsicum.....1 do.
Compound tincture of valerian or nervine.....3 gills.
Mix, and bottle for use.

Dose.—From a tea-spoonful to a table-spoonful, in a gill of water or herb tea; to be given every twenty minutes.

This tincture is also recommended for fits, spasms, and all violent attacks of disease; suspended animation from drowning, hanging, lightning, or any other cause.—Also good in cases where poisonous substances have been taken.

STRENGTHENING PLASTER.

Take of hemlock gum, add one-fourth the quantity of white turpentine, dissolve and strain it. Spread and sprinkle with Cayenne.

Use.—This forms an excellent strengthening and stimulating plaster. It is employed in chronic rheumatism, weakness in the back, etc.

SUDORIFIC TINCTURE OF SWEATING DROPS.

Take of Lobelia.....2 ounces.
Saffron.....2 do.
Camphor.....2 do.
Virginia snake-root.....2 do.
Pleurisy Root.....2 do.
Holland gin, or Jamaica spirits.....3 quarts.
Let it stand two weeks and filter.

Dose.—One tea-spoonful, given in a tumblerful of catnip tea, every hour or two till it produces perspiration.

This medicine is probably unsurpassed in fulfilling the indications for which it is generally given to produce free perspiration. One or two doses, aided by warm infusions, and bathing the feet, cause a copious perspiration. Hence it is useful in a variety of diseases.

ALTERATIVE SYRUP.

Take of American Sarsaparilla.....2 pounds.
Guaiacum shavings.....1 do
Sassafras-root bark.....2 do
Elder flowers.....2 do
Burdock-root.....2 do

Add one gallon of cheap spirits and one gallon of water; boil, and pour off the liquid; then add water repeatedly, and boil till the strength is obtained, strain, and reduce to sixteen porter bottlesful; then add twenty pounds of clarified sugar. Let it stand twenty-four hours to settle; pour off, and bottle for use.

The sugar may be clarified by adding to it half its weight of water, then a few eggs and boiling till no more scum rises.

Dose.—A wine glassful three or four times a day.

This syrup, the alterative, we use in a great variety of cases. In syphilitic or venereal diseases, rheumatism, and chronic inflammation of the liver we could not dispense with it; we also use it in the treatment of scrofula, which presents itself in so many shapes. In some of the cutaneous diseases we find it very effectual; in every species of ulcer it is also valuable; white swelling, necrosis, rickets, salt rheum, or herpes; and, in short, we have found it very useful in every taint of the system, from whatever cause.

HOT DROPS—COMPOUND TINCTURE OF MYRRH.—NO. 6.

Take of best myrrh twelve ounces, capsicum, one ounce, and brandy one gallon. The solid articles to be finely pulverized, and infused in brandy for ten days, in a hot sun heat, and often shaken, when it may be strained or filtered. This is a powerful antiseptic, and is highly valuable to wash and cleanse old foul ulcers.

NEUTRALIZING MIXTURE—NEUTRALIZING CORDIAL OR PHYSIC.

Take of Rhubarb, pulverized.....
Sal æratus, pulverized.....
Peppermint plant, pulverized.....
} equal parts.

To a large tea-spoonful add half a pint of boiling water; when cool, strain, sweeten with loaf sugar, and add a table-spoonful of brandy.

Dose.—One or two table-spoonsful every quarter, half, or one or two hours, according to symptoms.

This is one of the most valuable preparations known for cholera morbus, cholera infantum, or summer complaint of children, diarrhœa, dysentery, etc. Its operation and action appear to be a specific, if not infallible. It is excellent for pregnant women, to allay sickness and regulate the bowels.

DIURETIC DROPS.

Take of Sweet spirits of nitre.....2 ounces.
Balsam of copaiba.....1 do
Oil of almonds.....2 do
Spirits of Turpentine.....1 do

Mix these together, and add one scruple of camphor.

Dose.—A small tea-spoonful, given in mucilage of gum Arabic or herb tea, three or four times a day.

Use.—The drops are successfully administered in cases of scalding of urine, whether arising from syphilitic or other complaints. In inflammation of the kidneys they give prompt relief.

DIURETIC DECOCTION.

Take of Queen of the meadow.....2 ounces.
Milk-weed.....2 do
Juniper berries.....2 do
Dwarf elder.....2 do
Spearmint.....2 do
Wild carrot seeds.....2 do

Put all into a mortar, and bruise ; make a strong decoction.

Dose—Half a pint, to be taken through the day.

This decoction is very useful in gravel, dropsy, etc. It is strongly diuretic.

PROF. J. T. COXE'S RECIPE—FOR CHILL AND FEVER.

Take of Quinine.....3 grains.
Capsicum.....2 do
Lobelia pulv.....2 do
Gum camphor pulv.....2 do

Mix them well together and give the powder every two hours during the interval. To secure all the advantages of this powder, it should be administered after the action of a cathertic.

PROF. J. T. COXE'S RECIPE FOR RHEUMATISM—STIMULATING LINIMENT.

Take of Capsicum.....1 pound.
White Wax.....1 do
Lard.....3½ do
Oil Sassafras.....2 ounces.
Oil Cedar.....2 do
Oil Cinnamon.....2 do

Simmer the whole together by a slow heat, until the ingredients are well mixed, stirring well meanwhile with a spatula.

FOR NEURALGIA.

R.—1 pound of the roots of (Iron Wood) Vernonia Noveboracensis, boiled for an hour in two quarts of water. Express and strain. Simmer to the consistence of syrup. Add 4 ounces lard and 1 ounce Capsicum. Melt and mix thoroughly. Apply to the seat of pain.

PROF J. T. COXE'S RECIPE FOR RHEUMATISM, NEURALGIA, STIFF JOINTS, SPRAINS, BRUISES, &C.

Take Oil of Sassafras, Essence of Mustard, Chloroform.....} equal parts.

Rub the part affected thoroughly two or three times per day.

DR. FLEMMING'S NEW COMPOSITION.

Take equal parts of Prickly Ash, best Ginger and Nerve Powder. Dose, the same as composition.

This is good to give the emetic with, or as a vehicle to administer a cathartic, or for any disease where it is desirable to produce a termination to the surface.

COMPOSITION.

Take bayberry bark one pound, hemlock bark eight ounces, cayenne pepper two ounces, ginger two pounds, pleurisy root one pound, and cloves two ounces; mix them together and they are fit for use. A tea-spoonful is a medium dose.

These powders may be given in all cases and stages of diseases to which men, women and children are subject. They answer the general purposes of an alterative to establish perspiration, equalize circulation and remove obstructions, from cold or other causes.

FOR CHILLS.

Tinct. Verbuscum Thap--Mullin..... ½ pint.
" Cap. Ann. Cayenne..... 1 ounce.
Quinine Sulph.....20 grains.
Fras. Car. Columbo.....—..... 1 ounce.

Dose.—Table spoonful every two hours till the chill is broken.

Take of Sulphate of quinine.....1 scruple.
Capsicum.....2 do

Mix, and rub well in a mortar; divide into ten powders, and give one every two hours, in syrup, after having cleansed the stomach and bowels. A sure remedy for chills and fever; and excellent where the wine tincture cannot be taken.

DIAPHORETIC POWDERS.

Composition.....2 parts.
Lobelia, Herb. Pulv.....1 do

Mix and use one table-spoonful to one pint boiling water.

Dose—One table-spoonful of this tea every 20 minutes till perspiration is induced and repeated to keep up the termination to the surface.

This may be given in four grain powders with a little syrup.

ANOTHER.

Take of Butterfly root.....1 pound.
Bayberry, bark of the root.....1 do
Sassafras, bark of the root.....4 ounces.
Colic root.....4 do
Ginger.....1 pound.
Cloves.....2 ounces.
Cayenne.....2 do

All finely pulverized, and sifted through a fine sieve and well mixed.

Dose—For an adult, one tea-spoonful in hot water, sweetened if most agreeable. For children the dose must be proportionably less; and to make it a more agreeable, cream or milk may be added as well as sugar.

DR. P. SMITH'S FEVER AND AGUE PILLS.

Quinine.....80 grains.
Liquorice.....60 do
Cayenne.....40 do
Gum Arabic.....30 do

Mix in pill mass with water and form into pills.

Dose—two every two hours till ten are taken. Let the stomach and bowels be previously well evacuated.

DR. LANSDALE RECIPE FOR FLUX.

Take equal parts of Dogwood, Wild Cherry, Poplar, Black Haws and Dewberry. Cover with water and boil down one half, and add brandy or gin sufficient to preserve it.

Dose.—A table-spoonful after the bowels have been evacuated by neutral mixture or Oil.

DR. J. W. OSLIN'S CATHARTIC PILLS.

Gamboge Aloes, Rheubarb, each half ounce, Black Root and Blood Root each two ounces, mix with Ex. Dandelion and form into pills.

Dose—From three to six.

ANOTHER.

Take extract of dandelion; mandrake, pulverized; blood root, pulverized: of each equal parts, or sufficient to make a pill mass; add a few drops of essential oil, peppermint, and form into common sized pills. Take three night and morning.

This is an extraordinary remedy for the liver complaint. It generally soon removes the pain in the side, shoulder, etc., and is excellent in jaundice and affections of the kidneys, The stimulating plaster should be worn over the seat of the disease. An amendment is sure to follow their use in a few days.

FOR FEMALE OBSTRUCTIONS.

Sulphate of Iron and Nervine, each three ounces, mix and made into pills with Ex. Black Cohosh.

Dose—Three, two or three times per day.

FOR FLUOR ALBUS.

Ex. Gentian, Ex. Bayberry, Sulphate Iron and Copabia, each three ounces, Kino Tannin, each about ninety grains, mix with syrup and make into pills.

Dose.—Three, three times per day.

FOR WHOOPING COUGH.

To half pint syrup, add two ounces Tinct. Mac. Rac. (Black Cohosh) one ounce Tinct. Lobelia.

Dose— For a child, one teaspoonful, to be increased till slight nausea or full relief is produced.

GOOD GARGLE FOR SORE THROAT.

Solution of Borax.....4 parts.
Hot Drops.....1 do

Mix and gargle four or five times per day.

FOMENTATION.

Take Hops,.....3 ounces.
Tansy,.....3 do.
Wormwood,.....3 do.
Hoarhound,.....3 do.
Catnip,.....3 do.

Or a handful of each. Make of these articles a strong decoction, by boiling in equal parts of vinegar and water.

Use.—This will be found very efficacious in relieving pain and inflammation, resulting from contusions, sprains, dislocations, and other causes.

It may also be usefully employed in inflammation of the bowels and of the stomach; in short, in almost every species of inflammation it will be found very useful.

RHEUMATIC LIQUID.

Take of Sassafras oil,.....2 ounces.
Hemlock oil,.....1 ounce.
Red Cedar oil,.....1 do.
Oil of Turpentine,.....1 do.
Gum Camphor,.....1 do.
Capsicum,.....1 do.

Mix: add two quarts of alcohol.

This is a very valuable compound for rheumatism, and every kind of pain, ague in the face and jaws, neuralgia, spinal irritation, etc. Bathe the parts affected for a few

minutes with the hand or flannel; repeat when painful: if too strong, dilute with a little water.

DISCUTIENT OINTMENT.

Take of Yellow Dock,.....1 pound.
Poke-root,.....1 do.
Stramonium,.....1 do.
Bitter-sweet, bark of root,.....½ do.

Bruise all except the stalks, which ought to be left out; cover with cider brandy, or any kind of spirits, and let it stand for twenty-four hours; then add sufficient lard, when melted, to cover the whole, and simmer slowly, till all the virtue of the articles has been communicated to the lard. Then strain and press. After which add a pound of Venice turpentine.

Use.—This ointment is exceedingly valuable in discussing scrofulous, indolent, and glandular tumors and swellings.

It should be rubbed on the parts about thirty minutes each time that it is applied; after which let a piece of cotton be applied and secured by a proper bandage.

STIMULATING PLASTER.

Take of good thick tar,.....1 pound.
Gum Turpentine.....½ do.
Burgundy Pitch,.....½ do.
Beeswax,.....½ do.

Melt, strain, and boil a few minutes; then remove from the fire, and stir in as it cools the following articles, finely pulverized, mixed and sifted, viz: Three ounces each of Poke-root, Mandrake, Blood-root, and Indian Turnip. Keep stirring occasionally, till the whole mass is uniformiy incorporated.

Directions.—Spread on a piece of soft leather and place over the part affected.—Keep it on as long as can be borne, then remove, and put it on again in a day or two.

If the itching proves too troublesome, occasionally remove and wash the parts with water or spirits.

This plaster brings out pustules or eruptions like the small pox, and causes all discharge of matter. It appears superior to all other plasters. I should recommend those who have obstinate ulcers to apply the *stimulating plaster.*

BLACK PLASTER OR SALVE.

Take of Olive Oil,.....3 quarts.
Common Resin,.....3 ounces.
Beeswax,.....3 do.

Melt these articles together, and raise the oil almost to boiling heat; then gradually add of pulverized red lead two and a quarter pounds, if it be in the winter; if in the summer, two and a half pounds. In a short time after the lead is taken up by the oil, and the mixture becomes brown or a shining black, remove from the fire; and, when nearly cold, add of pulverized camphor half an ounce.

It should remain on the fire until it forms a proper consistence for spreading, and which may be known by dipping a spatula or knife into it from time to time, and suffering it to cool.

We have found this salve superior to every other, where applications of this kind are required. It has an excellent effect in burns, fever sores, scrofulous, fistulous, and all other ulcers.

It should be spread thin, on a piece of linen, and renewed once or twice a day.

SYRUP FOR DYSENTERY.

Rhubarb and wild cherry bark, a handful; four table-spoonsful of sugar; simmer a while.

The above is taken from a work called the "*Indian Physician*," and is pronounced infallible in dysentery.

HERPETIC WASH.

Take Poke root pulverised,
Lobelia .....do.
Yellow dock, do
} equal parts.

Bruise, and add a table-spoonful to one pint of vinegar and spirits.

Bathe often for eruptions of the skin.

DR. REID'S ANTI-BILIOUS PILLS.

Take of Gumboge,	2 ounces.
Blood-root,	2 do.
Lobelia seed,	1 do.
Cayenne pepper,	2 drachms.
Rhubarb,	4 do.
Pearlash,	1 drachm.

All made fine, sifted and mixed. Brought to a proper consistence for making into pills by the addition of syrup of buckthorn or butter nut. After making, roll them in pulverized golden seal. Dose 3 to 6.

EXPECTORANT TINCTURE.

Take of Capsicum,	½ ounce.
Blood-root,	1 do.
Lobelia seeds,	1 do.
Wine, spirits or brandy,	3 pints.

Let it stand one week. When taken mix with water.

Dose.—A table-spoonful twice a day, or as often as may be necessary.

It is useful in inflammation of the lungs, pleurisy, hooping-cough, consumption, fits, etc., and when there is any difficulty of expectoration.

FEVER POWDER.

Take of dragon's claw or Crawley, pulverized.

Dose.—A tea-spoonful, infused in a proper quantity of water, morning and evening.

These powders have been much celebrated in the treatment of fevers, and particularly of that species called hectic fever. They act as a mild, but efficient sudorific, without increasing the force of the circulation. They may be safely administered in almost every stage of fever.

DR. W. M. CHRISTOPHER'S SWEATING POWDER.

Take of Serpentaria Pulv.	1 ounce.
Asclepias Tub., (Pleurisy Rt.)	1 do.
Lobelia Fol. (Lobelia Herb,)	1 do.
Camphora, (Camphor,)	½ do.
Cypripedium Put., (Nerve Rt.,)	½ do.
Capsicum An., (Cayenne)	⅛ do.

Dose, one or two grains in sage tea or any other bland and mild tea.

CEPHALIC POWDER.

Take of Blood-root	1 ounce.
Bark of the root of bayberry	1 do.
Canada Snake Root,	½ do.

Useful in catarrh, headache, polypus, etc.

STIMULATING LINIMENT.

Tincture Cayenne, Lobelia and Camphor, each, two oz., and 30 drops each of the oils of Sassafras, Wormwood, Cedar and Juniper; and if for Rheumatism, add the same of Turpentine.

FOR CHRONIC RHEUMATISM.

Take of Xanthox, Frax., (Prickley Ash,)	3	ounces.
Bacca. Phytolae, (Poke Berries,)	2	do.
Cap. Ann., (Cayenne,)	½	do.
Apocy. Andras. (Bitter Root,)	½	do.
Tinct. in Whiskey	½	gal.

Dose, table spoonful three times a day.

At the same time giving Emetics, Vapor Bath, and using Stimulating Liniments.

FOR SCALD HEAD.

For wash, use one oz. of Salaratus in ½ pt. of Rose water, three times per day.—Then apply Stramonium Ointment, 3 ounces, Venice Turpentine, 1 ounce, simmer together. The hair well shaved off and the scalp kept clean.

FOR DROPSY.

Take of Chionanthus, (Greybeard,)	1	quart.
Iron Filings,	1	ounce.
Sinipis Alba, (White Mustard,)	1	do.
Zingeber, (Ginger,)	1	do.
Iris. Vers., (Blue Flag,)	1	do.

Mix and let digest well. Dose—a tablespoonful three or four times a day.

A course of Medicine frequently, and a pill composed of equal parts of Ginger, Unicorn, Iron, made up with Ex. Sourwood.

Dose, three pills per day, will be found to be judicious treatment in many cases of Dropsy.

TONIC BITTERS.

Take of Poplar Bark	1	pound.
Balmony	½	do.
Bayberry bark	¼	do.
Ginger	¼	do.
Cloves	¼	do.
Golden Seal	¼	do.
Boiling Water	2	gallons.
Sugar	2	pounds.

Mix these and add two gallons Cherry Spirits.

Dose.—From two to four tea-spoonful three times per day.

WINE BITTERS.

Take of Balmony	8	ounces.
Bayberry	8	do.
Cassia, (of the shops)	8	do.
Golden seal	12	do.
Anise seed	4	do.
Cloves	2	do.
Cayenne	1	do.
Bitter root	8	do.
Brown sugar	3	do.

all pulverized and well mixed. One ounce to a quart of wine.

Dose.—A wine-glassful three times a day. This, we are informed, is the celebrated wine bitters prepared and sold in such vast quantity by Dr. John Thomson, of Albany, New York. Very useful in dyspepsia.

VERMIFUGE.

Wormwood Oil, four ounces, Spirits Turpentine, four ounces, Castor Oil, eight ounces.

Dose.—A teaspoonful for a child.

SPICE BITTERS.

Take of Poplar Bark .....1 pound.
Bayberry.....1 do.
Golden Seal.....1 do.
Cayenne.....4 ounce.
Cloves..... 4 do.

Loaf or lump sugar in quantity equal to all the other articles. The whole finely pulverized, sifted and well mixed.

Dose.—Table spoonful three times a day.

TONIC CORDIAL.

Take of Poplar Bark.....1 pound.
Bayberry, (bark of the root).....8 ounces.
Dogwood bark..... .. ..8 do.

All made fine. Water, a suffieient quantity ; boiled to two gallons ; then strain off, and add of

Sugar, (loaf is the best,).....7 pounds.
Peach kernels, pulverized.....8 ounces.
French brandy.....1 gallon.

To be kept closely bottled.

Dose.—Half a wine-glassful, three or four times a day. This is a very valuable tonic compound, partaking of the properties of both bitter and astringent tonics, the bitterness, however, rather predominating. It is a most excellent restorative ; useful in all cases, particularly in diarrhœa and dysentery.

FEMALE RESTORATIVE.

Unicorn, golden-seal, poplar bark, ginger, gum myrrh, cloves and bay-berry, equal parts, eight ounces, cayenne two ounces, white sugar three pounds—mixed.

Dose.—A tea-spoonful every four hours.

These powders are particularly serviceable to females laboring under any chronic affection of the generative organs, which deranges at the same time the healthy tone and action of the stomach and bowels.

COUGH BALSAM.

Take of good Syrup.....1 quart.
Tinct. Lobelia.....5 ounces.
" Bloodroot.....4 do.
" Black Cohosh.....4 do.
" Bal. Tolu.....3 do.
Essence Wintergreen.....2 do.

Dose.—One tea-spoonful as often as necessary.

FOR ERYSIPELAS.

Dr. Joseph R. Hand has given us the following treatment for Erysipelas :

Take two parts bitartrate potassa, and one of ginger. Mix and put one tea-spoonful into a cup of boiling water. Drink freely to keep up a perceptible action on the bowels, kidneys and skin. From one to three cupsful may be given in twenty-four hours. For local application, powdered starch. Diluted muriate amonia also is good.

DR. O. FLEMING'S LINIMENT FOR RHEUMATISM.

Take one pint Spirits Turpentine, and dissolve all the Camphor that can be dissolved by the turpentine; now add Soap and Amonia sufficient to make into a paste ; Cayenne or essential oils may be added.

DR. FLEMMING'S QUININE PILLS FOR CHILLS.

Ex. Boneset and Quinine, equal parts by weight; mix with oil of Pepper, and roll in Pills.

Dose.—Two to four every two hours.

DR. FLEMMING'S CATAPLASM.

The white of three eggs beat well, and add one-half ounce Spirits of Turpentine, one-half ounce of Elm, one-fourth ounce Cayenne, mix and spread upon thick cloth over the region of pain.

DR. MCGAUGHEY' CATHARTIC PILL.

Take of Aloes	1	ounces.
Gamboge	1	do.
Colycinth	2	do.
Soft Soap	8	do.
Oil Cinnamon	2	drachms.
" Cloves	½	do.

DR. LANSDALE' RECIPE FOR MILK LEG.

One quart of Rum, one pint of Sweet Oil, one ounce of Gum Camphor, mix and boil to one quart, then add one ounce Allum pulverized, and one ounce Saltpetre pulverized, and bathe the limb often; using at same time the usual poultices and Reform treatment.

BLEEDING FROM THE NOSE.

Dr. J. A. Park informs us that he cured a case of Hæmoptisis which had troubled the patient for years, with the following: Equal parts of *tannin and charcoal* of the Willow used as a snuff; and for an internal remedy, two parts of Capsicum and one of steel dust.

Dose.—A tea-spoonful three times per day in syrup.

DR J. R. LASSETER'S BURN SALVE.

Take of Golden Seal,	1	ounce.
Gum Myrrh,	¼	do
Lime Water,	1	pint

Boil to half pint, and add 1 pound of mutton tallow, and four ounces Bal. Fir. Simmer until all the water is evaporated. The tallow and Bal. Fir must first be mixed together. This is a good salve for chafing and for Puritus Valva, etc.

LINIMENT FOR BURNS.

Take equal parts of sweet oil, of fresh drawn linseed oil, and limewater; shake them well together, so as to form a liniment. This is found to be an exceedingly proper application for recent scalds or burns.

BANKSTON'S ANODYNE.

Ex. Sculcap, Valerean, and Hops, equal parts each, made in pills or dissolved in some bland tea.

Dose, ½ tea spoonful, or three pills.

THIRD PREPARATION OF LOBELIA.

Take an ounce of lobelia seed pulverized; and an even tablespoonful of nerve powder. Mix them together, and add between half a pint and a pint of No. 6. To be kept in vials or bottles tightly corked, and not allowed to remain in a hot place.

The third preparation of lobelia is particularly adapted to violent attacks of disease, as in fits, bilious colic, cholera morbus, epidemic cholera, locked jaw, poisons taken into the stomach, suspended animation from drowning, lightning, or from inhaling carbonic acid gas; difficult cases of croup and asthma; gout, palsy, and in all cases of violent pain.

COMPOUND LOBELIA PILLS.

Mix equal portions of pulverized lobelia seed and cayenne pepper, and add sufficient mucilage of gum arabic, or licorice dissolved in water to the consistence of molasses, to render the mass of a proper texture for working into pills.

The compound lobelia pills may be used as a general medicine, where persons prefer taking medicine in the form of pills. They are particularly adapted to cases of dropsy; as the desired impression may be made by medicine, without the use of liquids.

Dose.—In case of rheumatism, dropsy, etc., when it is proper to place the system under the continued influence of medicine, from two to four pills may be taken about every hour or two. In ordinary cases of dyspepsia and costiveness, where the patient is not confined to the house, from two to four or five of the pills may be taken at bedtime. Emetics of lobelia may be administered in the form of pills; the patient taking freely of bayberry tea when sickness comes on.

EXTRACT OF BAYBERRY PILLS—NO. 3.

To make these pills, (also called "No. 3, or anti-canker pills,") take about equal quantities of cayenne and extract of bayberry; work the cayenne into the extract until thoroughly and equally combined, and then form into pills. By keeping the mixture warm, it may be more easily worked.

In all cases of disease, when the patient prefers taking medicine in the form of pills, the No. 3 pills may be used either as a substitute for composition or bayberry and cayenne, or taken with these medicines. They have been given in doses of from four to six or eight pills every two hours, as a general medicine, with signal benefit, in various acute diseases—pleurisy, dysentery, small pox, measles, scarlet fever, and in fevers in general.

NO. 6—HOT DROPS.

Take an ounce of *African* pepper, one pound of powdered myrrh, and a gallon of fourth proof brandy. Put these into a stone jug, and boil it half an hour in a kettle of water—the jug to be uncorked.

NO. 5, OR RESTORATIVE CORDIAL.

Take of white and black aspen poplar, each, half a pound, bark of the root of bayberry, one pound, and boil them a few minutes in two gallons of water; then strain, and add seven pounds of good sugar, and simmer until the sugar is dissolved; then skim it, and add half a pound of finely pulverized peach-meats, and three quarts of good brandy.

Dose.—From half to a wineglassful, three or four times a day.

This syrup is useful in cases of recovery from sickness, attended with a weak and relaxed condition of the bowels.

GRAVEL PILLS.

Take Eggshells,	2	ounces.
Nitre,	2	do
Castile Soap	8	do

Pulverize separately and very fine, then mix with Oil Pumpkin Seeds, or Oil Juniper, and roll in Slippery Elm. Dose, two at night and two in the morning. After 8 or 10 are taken, let the patient drink of Cream of Tartar water.

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